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CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

ANNUAL REPORT

OF THE

MEDICAL OFFICER OF HEALTH

ON THE

Sanitary Condition of the City

DURING THE YEAR

1921.

63565



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SANITARY COMMITTEE.

Alderman C. T. STABLEFORTH, J.P., Chairman (died 21st April, 1922).

Councillor R. W. SIMPSON, M.B., Ch.B., Vice-Chairman
(elected Chairman 8th May, 1922).

The Lord Mayor (Councillor THOMAS W. ROWE, J.P.)

Alderman ADAM WILSON, J.P., F.R.C.S.

„ ALEX. WILKIE, C.H., J.P.. M.P.

Councillor WALTER LEE, J.P.

Councillor W. R. WALLACE.

„ G. D. NEWTON, L.R.C.P.

„ W. V. LONGFIELD.

„ W. H. WOODMAN.

„ J. BARTLETT.

„ J. W. TELFORD.

„ JNO. BARKER.

„ W. E. HARKER, J.P.

„ D. ADAMS, J.P.

„ J. C. DOYLE.

„ J. MOORE, J.P.

„ ADAM TINDALL.

„ JAS. SMITH.

„ J. CAREY.

„ JOHN CHAPMAN, J.P.

„ H BENSON, J.P.

„ E. MIDDLETON.

„ WM. BECKETT.

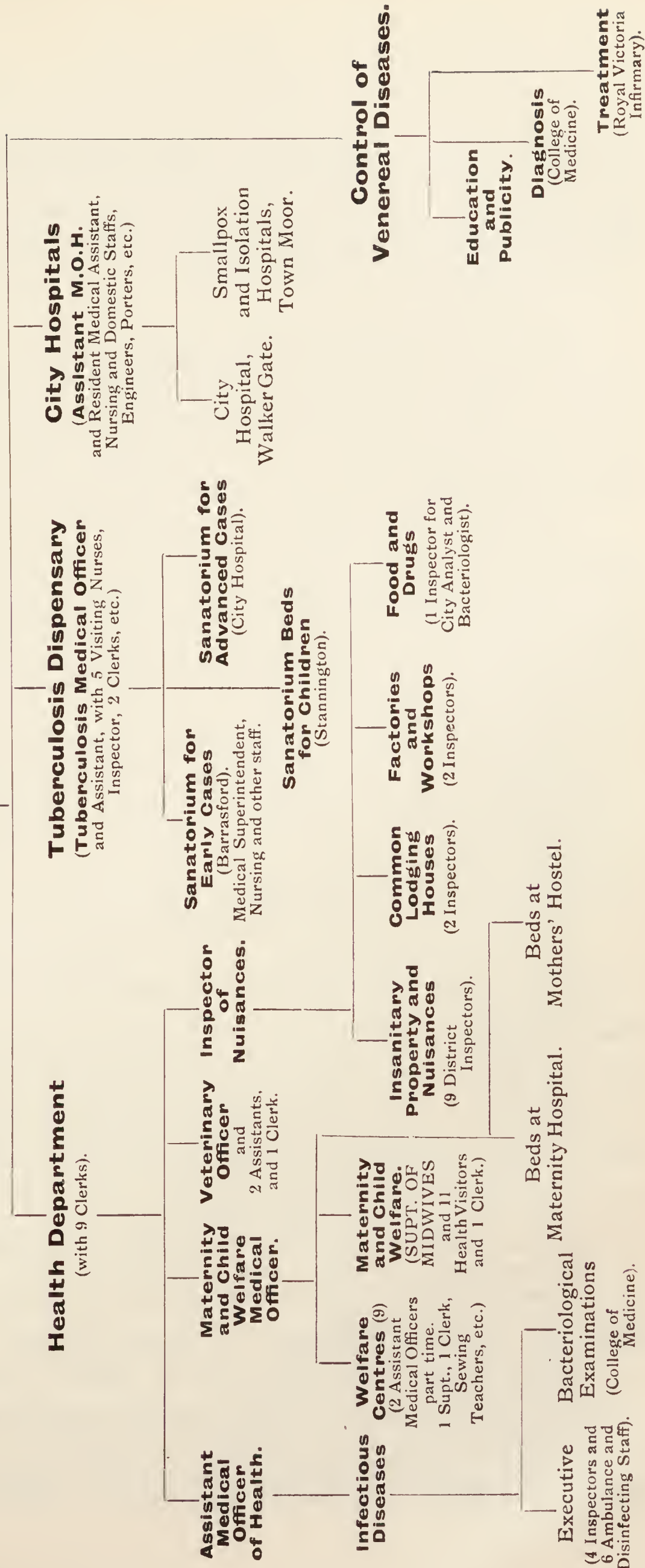
„ JOHN GRANTHAM.

„ C. PILLAR.

„ GEO. DIXON.

TABLE SHEWING THE VARIOUS SECTIONS OF THE SANITARY COMMITTEE'S WORK WHICH IS UNDER THE DIRECT CHARGE OF THE MEDICAL OFFICER OF HEALTH.

Medical Officer of Health.



STAFF.

HAROLD KERR, O.B.E., M.A., M.D., Ch.B., D.P.H., Medical Officer of Health and Medical Superintendent of the City Hospitals for Infectious Diseases.

S. J. Clegg, O.B.E., M.D., Ch.B., D.P.H. (Deputy Medical Officer of Health).

Wm. Hudspeth, Senior Sanitary Inspector.

CHRIS. RAIMES, Chief Assistant Inspector and Assistant Workshops Inspector.

WM. CATTLIFF, Assistant Inspector under the Food and Drugs Acts.

ISAAC CLARK, Assistant Workshops Inspector.

E. W. SCOTT, JAS. McNICHOL, JAS. HUNTER, GEO. HARDIE, W. F. BACON, JAS. McKENDRY, RICHARD REDPATH, ADAM FLOCKHART, L. W. JOHNSON, District Inspectors.

ARTHUR ROWE, THOMAS HESLOP, Assistant Inspectors of Common Lodging Houses.

WM. BEAN, WM. GRAY, W. E. PERKINS, C. R. CRAIG, Infectious Disease Inspectors.

JAS. ROBSON, JAS. BRUCE, JNO. R. CRAGIE, J. W. ROBSON, T. W. WHELANS, THOS. MOORE, Ambulance Drivers and Disinfectors.

Wm. Gillender, WM. MILNE, *GEO. CUTHBERTSON, *ALFRED HEDLEY, M.S.M., *ALEC M. WALKER, JOS. GILHESPY, *WM. COCKBURN, TAYLOR RICHARDSON, F. T. H. BELL, IVY GOODHALL (Typist), Clerks in the Health Department.
(Those marked * hold the Sanitary Inspectors Certificate of the Royal Sanitary Institute).

Thos. Parker, F.R.C.V.S., Veterinary Officer and Inspector of Provisions.

THOS. DODDS, JAS. M. ANDERSON, Assistant Inspectors of Provisions.

NORMAN DICKSON, Clerk.

A. F. G. Spinks, M.D., Maternity and Child Welfare Medical Officer.

a GEORGINA B. CAMERON, Chief Health Visitor and Supt. of Midwives.

a CATHERINE M. THEXTON, **c** MARY LEVINE, **b** MARIAN MOODY, **c** LIZZIE ISA. PRITCHARD, **c** LOUISE SHELL, **b** MAISIE L. HOPPER, **d** FLORENCE MARTHA HATFIELD, **c** JEANNIE GONZALEZ, **b** MATILDA WALLACE, **a** MATTIE D. HALLIDAY, **b** HANNAH CHARLTON, Health Visitors; **EDITH RODGERS,** Clerk.

Qualifications of those marked **a** C.M.B., General and Fever Nursing and R.S.I. Certificates.
b C.M.B., General Nursing and R.S.I. **c** C.M.B., and R.S.I. **d** C.M.B., and General Nursing.)

H. GLEN DAVISON, M.D.

MABEL CAMPBELL, M.B., CH.B.

ANNIE G. BAINBRIDGE, Superintendent of Welfare Centres.

AMY RODGERS, Clerk.

} Assistant Medical Officers (part time),
Welfare Centres.

Wm. H. Dickinson, O.B.E., M.R.C.P., M.B., Ch.B., D.P.H., Tuberculosis Medical Officer,

T. N. V. Potts, M.B., B.S., D.P.H., Assistant Tuberculosis Medical Officer.

a MARGARET L. HUTCHINSON, **c** CONSTANCE M. BAYNE, **d** ANNIE BOOTH,

a W. E. DALE, **b** M. I. DUNN, Tuberculosis Visiting Nurses.

(Qualifications of those marked **a** General Nursing. **b** General and Fever Nursing. **c** Health Visitors and School Nurses Certificates of R.S.I. **d** Fever Nursing).

RALPH T. MORRISON, Assistant Inspector.

GEORGE MAGNAY and WINIFRED MCGILLAN, Clerks.

C. G. R. Goodwin, M.R.C.S., L.R.C.P., Medical Supt., Barrasford Sanatorium.
FRANCES BAGULEY, Matron; Sister, Nurses, Servants.

N. R. Beattie, M.B., B.S., Resident Medical Assistant, City Hospitals for Infectious Diseases.

H. E. Cook, Matron, City Hospitals for Infectious Diseases.

JESSIE LAING, Assistant Matron. Sisters, Nurses, Servants.

HELENA N. HARRINGTON, Dispenser.

JAS. COCKBURN, Engineer, **GEO. COCKBURN,** Assistant Engineer.

HERBERT BLACKTIN, FRANK HARRINGTON, Lodge Keepers, City Hospital, Walker Gate. Firemen; Porters.

JOS. W. and JANE STEPHENSON, JAS. and MARY GREGAN, Caretakers at Smallpox and Isolation Hospitals.

*To Councillor R. W. SIMPSON, M.B., Ch.B.,
etc., Chairman of the Sanitary Committee
of the Corporation of Newcastle-upon-Tyne.*

SIR,

A report on the health conditions in the City of Newcastle-upon-Tyne during the year 1921 must of necessity take cognisance of the abnormal social circumstances, economic and otherwise, which characterised it as a year of industrial depression.

As was recorded in the health report for 1920, the end of that year saw the close of a period of false prosperity contingent upon the war, during which everybody appeared to be well-to-do, in spite of the ever-rising cost of living. This figure reached its maximum of 176 per cent. above that of 1914, in November, 1920, and had already begun to drop by the end of the year. In January, 1921, it was 165 per cent., and in December, 1921, it was 99 per cent above pre-war.

Falling costs were attributable, to some extent at least, to general reductions of wages. These only too frequently resulted in strikes, the worst of which, and holding an unhappy record for duration, was the great coal strike. This commenced on the 1st April, 1921, and lasted until the 1st July, 1921. Fortunately it was unaccompanied by any disorder or rioting.

The gradual disappearance of fuel for domestic and industrial purposes, and its necessarily strict rationing, led to the closing down of nearly all factories and manufacturing processes, and very great unemployment. What this would have meant in terms of mortality but for the "Dole,"—the unemployment benefit under the

Unemployment Insurance Acts—can only be guessed at. The effect of these strikes, coinciding as they did with a general severe trade slump, were felt throughout all sections of the community, and unemployment has been one of the most prominent features of the year.

From three to five thousand persons in Newcastle were unemployed during the latter half of 1920, but this number increased rapidly with the onset of the coal strike, and throughout the last seven months of 1921 averaged between twenty-five and thirty thousand.

The prolonged absence of coal smoke resulted in such a clarity of the atmosphere as had not been known on Tyneside by any one alive to-day. The climatic conditions were exceptionally good, the summer being one of the longest and finest in living memory.

The Registrar-General found the **Population** at the middle of the year to be 278,400, as compared with 266,603 at the previous census in 1911.

The number of **Marriages** in the City during the year was 2,567, as compared with 3,036 in 1920, 2,985 in 1919, 2,544 in 1918, and 2,389 in 1917.

The **Birth Rate** was 26·2 per 1,000 population, as compared with 28·0 in 1920 and 23·3 in each of the two preceding years.

In spite of financial privations and a considerable amount of hardship, the year was only a decimal degree less healthy than 1920, as judged by the **General Death Rate**, which in 1920 was the lowest ever experienced here, though still rather higher than the average for the 105 great towns of England and Wales; Newcastle's rate was 14·1 deaths per 1,000 population in 1921, and that for the great towns 12·3. It is noteworthy,

however, that the death rate in Newcastle is considerably below that for any of the other large towns in the North East, with the exception of Tynemouth. As the North Eastern Group includes the most generally overcrowded towns in the country, overcrowding that has increased considerably during the last intercensal period, it is subject for congratulation that our figures compare as favourably as they do with the rest of the country.

The *Natural Increase* of population (births minus deaths) amounted to 3,357.

As was to be expected from the greater atmospheric purity the deaths from **Respiratory Diseases** shewed a substantial decrease. **Circulatory Diseases**, i.e. of the heart and blood vessels, continue to take greater proportionate toll each year and (with the exception of the year 1915) accounted for the heaviest total yet recorded. These diseases are generally associated with prolonged physical overstrain, and a certain proportion with old venereal disease and alcoholic indulgence. Deaths from **Diseases of the Digestive System** fell steadily from 1914 till the end of the war, rose again as steadily from 1919, and have now almost reached the pre-war figure. The explanation of this is a problem that may well intrigue the physiologist. The most obvious inference is that a plain and limited diet, including essentials, is better for us than unrestricted indulgence in more varied and attractive, though not necessarily more wholesome, foods.

As evidence of greater general mental stability and freedom from anxiety since the dark days of 1914-1918, deaths from diseases of the **Nervous System**, which reached their highest figure in 1918, have been falling substantially each succeeding year, and are now

well below even the pre-war numbers, while deaths from **External Causes**, i.e., accident and violence, also shew a somewhat similar gratifying decline.

The precise nature of **Cancer** is still shrouded in mystery, in spite of the immense amount of research work that has been devoted to the subject; its hidden or unrecognised commencement permits the firm establishment of the disease, and this is usually the main obstacle to its cure, of which there is a fair prospect if the aid of the surgeon is invoked in the earliest stages; any abnormal lump or swelling or discharge, therefore, should have immediate medical attention. The disease caused a rather greater number of deaths in 1921 than in the previous year, but considerably fewer than in the year 1910.

The incidence of **Epidemic and Infectious Disease** was low. **Smallpox** and **Typhus** were entirely absent. The persistently increasing neglect of *vaccination* is cause for very grave anxiety at the present time, when smallpox has occurred in epidemic form in various parts of the country, and is now almost at our doors. The percentage of total births in connection with which vaccination exemption certificates were obtained has now reached the high figure of 29·3.

Of **Enteric Fever** there were only 7 cases (though with 5 deaths), the smallest number we have ever known. In fact, that disease may be said to have been stamped out here. **Diphtheria** (353 cases, 22 deaths) and **Scarlet Fever** (1,413 cases, 12 deaths) caused the smallest number of deaths yet recorded, although the last-named during part of the year was almost epidemic in mild form, with the extremely low fatality rate of 0·8 deaths per 100 cases. **Measles** (3,762 notifications

and 97 deaths) was also mildly epidemic; cases were closely looked after by Health Visitors, however, and there is no doubt that this, to some extent at least, was accountable for the comparatively small number of deaths. **Whooping Cough** was responsible for 58 deaths, and **Infantile Diarrhoea** caused 120 deaths in children under two years of age.

There were 3 cases of **Acute Poliomyelitis**, which recovered; 2 of **Cerebro-Spinal Fever**, both of which died; and 18 of **Encephalitis Lethargica**, with 10 deaths assigned to various forms of "Encephalitis." There was no recurrence of the **Influenza** epidemic throughout the year. With regard to **Tuberculosis** we have to report further good progress, in that the disease claimed the smallest number of victims in any year hitherto. Fuller reference is made to this under a special heading.

Hospitals for Infectious Diseases.—1,683 fever patients, together with 174 cases of pulmonary consumption, were isolated at the *City Hospital, Walker Gate*. The *fever* case mortality for the Hospital was 3·6 per cent. The *Smallpox and Isolation Hospitals* were in use from October to December, 214 patients (scarlet fever convalescents) being admitted.

The *Disinfecting Stations* at Walker Gate and on the Moor dealt with 60,498 articles from the City and from the hospitals themselves.

At the instance of the Deputy Medical Superintendent (Dr. S. J. CLEGG), an interesting experiment has been carried out at the fever hospital by the appointment of an Oto-Rhinologist, Dr. Neil Maclay, for consultative and operative assistance in connection with the cases of chronic nose and ear infection in Scarlet Fever.

The result of this has more than justified expectations, in that the average stay in hospital of such patients has been reduced from 52 days during 1920 to 37 days for the year 1921, a total saving of 436 patient-weeks in the year.

Professor R. A. BOLAM, Chief Specialist Medical Officer at the Clinic, reports that the fourth year of work for diagnosis and treatment of **Venereal Disease** has been one of further development and progress. 2,723 persons from Newcastle attended 29,813 times at the out-patient clinic, and occupied beds in the wards for 606 days, as compared with 30,526 attendances by 2,819 persons at the out-patient clinic, and 1,145 in-patient days in 1920.

From various sources comes proof that venereal diseases are already less prevalent than a year or two ago. To what extent this is due to the concerted measures adopted for their control by treatment and popular education, and how much to the settling down of the population after the great disturbances during and consequent upon the war, is not easy to determine. Doubtless each has played a part.

The clinic has done very fine work. It is still handicapped, however, in attaining complete results owing to 30 per cent. of the patients ceasing to attend before certain cure has been assured, and without some system making such cases compulsorily notifiable and conferring power upon the Local Authority to enforce continuance of the treatment, this handicap will still remain.

Some arrangement for hostel accommodation for infected girls and unmarried mothers would also be a great boon, as enabling many of these to obtain and continue treatment who are at present quite unable to do so.

Public education and propaganda have continued but with less intensity, since the enthusiasm of the various social bodies for addresses has waned somewhat, as the subject of venereal disease prevention is by no means a novelty to them now. A few addresses were given by the Medical Officer of Health.

The four police women continued to do excellent work. Their service lay mainly in patrol duty, and in detective work in connection with charges of abortion, and the treatment of disease by unqualified persons.

In spite of the long fine summer, a climatic condition generally unfavourable to child life, the **Infantile Mortality Rate** was the lowest ever recorded in the City, being equivalent to 96 deaths of babies under one year of age per 1,000 births. It is in the saving of child life that public health departments have obtained perhaps their most striking results. From the middle of last century there has been a steady transfer of populations from the rural areas into towns, the effect of which was most unfortunate for the young. The infantile mortality rate increased steadily until the end of the century, by which time public attention had been roused, and it was felt that something must be done, and done quickly, to save the babies. The Newcastle Health Department was amongst the first to institute measures for **Maternity and Child Welfare**, and almost from that moment the infantile mortality rate in this City began to decline. Whereas in 1899 of every five children born one failed to attain the age of one year, now the loss has been actually halved, and is not quite one in ten. A study of the figures for the various wards in the City is interesting. Generally speaking poverty and child wastage go together, and as might be expected the heaviest infantile

mortality rate is seen in St. John's Ward, with its wretched streets of teeming tenements, whereas in Jesmond Ward the loss of child life is proportionately only one-fifth of St. John's, and in Arthur's Hill Ward, with a population which might be described as middle and lower middle class fairly provided with the necessities, and even comforts, of life, there was not a single infant death. Also one notes that in the poorest wards, where the chances are most heavily against survival, the birth rates are the highest, and this is well seen in St. John's. In the more well-to-do districts, such as Jesmond and Dene Wards, the birth rates are only about half the foregoing, but in Arthur's Hill the birth rate is by far the lowest of all.

Low birth rates are believed to result from two chief causes, firstly, actual diminished fertility, and secondly, deliberate resort to contraceptives. The former naturally follows from the gradual postponement of marriage to later ages (the effect of modern economic conditions upon the professional and middle classes), while knowledge of the second is steadily spreading and becoming increasingly applied by those who do not desire larger families than they can make satisfactory provision for. Unfortunately it is now in the poorest, most ignorant, and thriftless classes that we find the highest birth rates, and coincidentally the greatest wastage of life. It is by no means necessarily the most fit that constitute the survivors, consequently any suggestion to improve the race by allowing infantile ills to run their course unchecked is utterly fallacious, as in a community which adopts no special safeguards epidemic disease attacks the fit equally with the unfit, and only too frequently it is the latter that survive. In addition there is to be considered the enormous amount of

permanent damage suffered by many of these who do not actually succumb, damage that may be gauged from the lists of physical defects discovered by the School Medical Officer and by the recruiting officers for the Services.

The excellent work that was carried out during 1920 received a serious check through the drastic measures rendered necessary by the financial reductions imposed by the Council in March. Eight Health Visitors were dismissed, depleting the service from one Health Visitor to every 14,000 population to one to 24,000; the part-time medical services were also diminished, with the result that the Welfare Centres, already working to their full capacity, were so greatly overcrowded on the lessened number of doctors' days as to interfere considerably with the efficiency of their work. The Maternity and Child Welfare Medical Officer (Dr. A. F. G. SPINKS) has had to limit considerably the scope of his own efforts, and has perforce given his time mainly to the conduct of the advisory clinics at the Welfare Centres; the average attendance at each session was about 50, far too many to be examined satisfactorily in the space of two or three hours. It must be remembered that the purpose of these centres is preventive and educational, and not curative, cases requiring treatment being sent on to their private doctor or to an appropriate institution. The intention is the frequent and periodical overhaul of the children in order to detect any commencing abnormality and to check it; in other words to keep healthy children healthy. The growing appreciation of the value of the centres may be gauged by the fact that whereas in 1918, 745 individual children attended the centres 4,813 times, in 1921, 4,734 children, or seven times as many attended on 32,538 occasions, *i.e.*,

the attendances have increased seven-fold within a period of four years. There is a great need of extension of the service, the populous and poorer districts of Scotswood and Walker particularly being quite unprovided for in this respect ; centres are needed there, and more medical sessions are required at each of the existing nine centres.

In conjunction with the Welfare Centres the distribution of dried milk has continued, and under the closest scrutiny as regards its recipients. About 10 tons of dried milk, equivalent to approximately 14,000 gallons of fresh milk, were given *gratis* to 1,446 women and babies, and 20 tons, equivalent to approximately 28,000 gallons of fresh milk were distributed at cost price to 1,831 persons. The former figure shews an increase of 1,494 lbs., and the latter a decrease of nearly one-half compared with the previous year, a significant index of domestic finance in the poorer classes. It is satisfactory to record a distinct increase in the number of children who were breast fed.

The comparison of mortality rates between children attending Welfare Centres and those of the City as a whole indicate an immense superiority in the former. For all children under five years the death rate for the City is more than double that for the children under direct observation in the centres, while for those under one year of age the disproportion is considerably greater.

Health Visitors on their districts work in close conjunction with the Welfare Centres ; besides keeping under observation six-sevenths of the babies born in the City they have also performed the important and effective duty of visiting all notified cases of pneumonia and of measles for the purpose of ensuring that the mothers or other persons in charge were regarding the

condition with due seriousness, and carrying out the instructions of the doctor in attendance, and on occasion giving practical demonstrations of how the nursing requirements should be carried out. The gratifying influence of this upon the death rate for measles has already been referred to. The Health Visitors also assist in the care of cases of ophthalmia neonatorum; of this too common and quite preventable cause of blindness from infancy it is satisfactory to find that the comparatively low incidence in Newcastle shews a substantial drop from the previous year, viz. : 95 cases as against 116 in 1920.

From the foregoing it will be seen that the ground to be covered by the Health Visitors is wide, and a reduction of personnel has necessitated the dropping of a considerable amount of life-saving work. One item that can no longer be carried on is the following up of the babies, more particularly those in the least favourable home circumstances, through the early years of life preceding their coming under the observation of the school medical service. This linking up, a considerable start in which had been effected in the previous year, was already giving good results, and its discontinuance is much to be regretted.

The accommodation of the *Maternity Hospital*, including the nominal ten beds allotted to municipal cases, has been again taxed beyond its utmost capacity throughout the year, the wards on numerous occasions having been grossly overcrowded. The value of this institution to the City can hardly be over-estimated, and it is to be hoped that negotiations now pending will enable the institution to remove to more commodious quarters. The Sanitary Committee also subsidised ten beds in the

Hostel for Unmarried Mothers, of which good use has been made. The closest co-operation has continued between all these essential elements of a complete Maternity and Child Welfare scheme and the other voluntary organisations, including the two valuable *Day Nurseries* in the East and West Ends of the City.

The main success achieved so far in lessening the infantile death rate has been by the prevention of diseases occurring after birth. One-half to one-third of the total deaths in infants are due to pre-natal influences, and progress in this direction has been much more limited. Such conditions are to be found in the environment, food, occupation and habits of the mothers, and it is to the study of these that particular attention requires to be directed.

Organised effort in Newcastle against **Tuberculosis** commenced in 1906. In 1905 that disease caused almost one-seventh of a much higher death rate than we suffer to-day, whereas in 1921 Tuberculosis accounted for about one-tenth of a greatly decreased total number of deaths. This is still far too high a proportion, but we are travelling in the right direction.

The means adopted for combating the disease may be classed under two distinct heads. The first of these, and that which undoubtedly exerts the greatest influence upon its decline, comprises the communal measures for maintenance of the general health and sanitary environment through the work of the Sanitary Inspector, the Cleansing Superintendent, the Housing Architect, Parks' Superintendent, and more recently the Tuberculosis Medical Officer and the special machinery for which he stands. The second is personal in its application and

deals directly with the care of the sufferer and of those associated with him, and this is largely dependant for success upon the effectiveness of the first ; it includes home and institutional treatment, and the search for unrecognized cases, and in this also the Tuberculosis Medical Officer plays an important part.

In Newcastle we have had a comprehensive Anti-Tuberculosis scheme in force now for ten years, following upon and continuing in close conjunction with the general sanitary programme of the Health Department, and steady and fairly rapid progress has taken place over the past thirty years. In 1891 the death rate per 1,000 population in Newcastle from all forms of Tuberculosis was 3·52, in 1921 it was 1·62. During the war years there was a distinct check from a suddenly increased incidence amongst, more particularly, young women, doubtless owing to the greater strain thrown upon them by the necessities of the times. As regards individuals actually suffering from the disease the story is not so happy. Tuberculosis is curable, that is absolutely established, and the essential means, besides experienced medical control, are rest, fresh air, sunlight, good food and freedom from anxiety, *over a prolonged period* of perhaps two or three years. The first-named conditions can be and are fulfilled in sanatorium treatment, but it is only patients of the leisured and more well-to-do classes who may be care-free, and who can comply with the last proviso. The National Health Insurance Acts, by their sickness benefits, have done something to alleviate the immediate pecuniary difficulties of the wage earner, but this is strictly limited, and the sufferer feels compelled in most instances to return in far too short a time to his home circumstances, which are often the reverse of suitable for one in his condition.

Sickness and poverty form a vicious circle, and it is rarely possible for the consumptive to improve his environment, for his tendency is to slip downwards. With housing conditions such as they are to-day—acute shortage and the crowded rookeries which it was intended to sweep away long ago still standing—the crying need of the moment is not for more sanatoria (though we cannot do with less than we have at present) but for more and better houses. It has been demonstrated by capable observers that there is a close relation between tuberculosis prevalence and insufficiency of good fresh food, more particularly meat, and this has been seen again and again during the last eight years in Germany and other countries in Central and Eastern Europe, where the incidence of the disease has risen appallingly. Anything therefore that will tend to the improvement and cheapening of the public food supply is also of vital importance in the suppression of the disease.

In Newcastle the decline in pulmonary tuberculosis has not been so rapid as that in “other forms.” The latter are characteristic mainly of the earlier years of life, and there are strong reasons for associating them with the bovine disease, which is transmissible through milk. Samples of milk have been regularly examined for the presence of tubercle bacilli since 1906, and during the intervening period much has been done by education of farmers and otherwise to clear the milk herds, at least of the grosser tubercle yielders. While the percentage of samples found to be tuberculous has fallen from about ten per cent. to half that proportion, coincidentally the human deaths ascribed to tuberculosis other than pulmonary have also declined by about one-half.

The work accomplished in the *Tuberculosis Dispensary* has been most valuable. The rather smaller

number of patients has permitted of closer individual attention than in previous years, and extensive reference was made to the Tuberculosis Medical Officer (Dr. W. H. DICKINSON) by medical practitioners and official bodies for expert opinion. The arrangement was continued under which the School Medical Officers attended two sessions a week specially for school children found by them to be suffering from tuberculosis in the course of their inspections.

The function of the Tuberculosis Dispensary is to act as a sort of clearing house for all cases of the disease in the area, for their examination, advice and allocation for institutional or other treatment appropriate, for the search for commencing and threatened cases not previously recognised, the investigation of home conditions with a view to their improvement if possible, the following up and assisting of known cases, and generally for the co-ordination to one purpose of all the existing local organisations by which the sufferers may be helped.

In addition the Dispensary is a centre for the study of the disease and for public education against it. As in the case of the Child Welfare Centres actual treatment is not undertaken at the Dispensary, cases being referred to institutions or to the family doctor. The consultative work keeps the medical staff too fully occupied to permit of their visiting patients' homes, which is unfortunate, as much more might be gained by the closer search for incipient and curable or preventable cases than through the inquiries of the Visiting Nurses alone.

Besides being tenant of 30 beds for tuberculous children at *Stannington Sanatorium*, the Newcastle Corporation acquired in February, 1921, from the re-

tiring voluntary Committee, the *Barrasford Sanatorium*, for early adult cases, romantically situated some 25 miles distant from Newcastle among the Northumberland hills. The institution contains 95 beds, 40 of which during the past year were occupied by Newcastle cases, the remainder being leased to other Authorities. The Medical Superintendent (Dr. C. G. R. GOODWIN), reports upon the general features and amenities of the Sanatorium, and upon the year's work. Cases generally, if wisely selected, profit exceedingly by their stay in the Sanatorium, a certain proportion recover permanently, and many others are benefited for a considerable period, and return, temporarily at least, to normal life. Of 258 patients who completed treatment 88 returned home fit for work, and 108 improved.

As already stated, however, and as Dr. Goodwin emphasises, the stay in sanatorium is as a rule all too short, the average being only between 4 and 5 months, and the return to unfavourable home conditions leads too frequently to another breakdown. Since the Sanatorium was taken over by the Corporation, considerable improvement has been carried out, notably by the construction of an excellent sewage scheme, the securing of a permanent and unlimited supply of pure water, and the substitution of motor for horse transport. Much thought has also been given by Dr. Goodwin and the Sanatorium Visiting Sub-Committee to the comfort and means of recreation of the residents, both patients and staff.

The Hospital for Advanced Cases, an annexe of the City Hospital, Walker Gate, is one of the most valuable links in the scheme. With a nominal sixty-two beds it is capable, in summer at least, of accommodating

a further thirty patients in the out-door pavilions, but owing to financial strictures such extension, although greatly needed, was not made use of in the year under report. The cases admitted are those whose home conditions are unsatisfactory and specially conducive to the spread of infection to the other members of the household. These patients enjoy a considerable degree of liberty, have occasional leave of absence, and their friends have ready access to them. They are well fed, well housed, and well nursed, with the result that many of them undergo sufficient improvement to permit of their return to work for a further period.

Through the interest and activity of Dr. Dickinson, the Citizens' Service Society formed a highly representative *Voluntary Tuberculosis Care Council* in the early part of the winter for the practical assistance of consumptives and their families. Under the general direction of the Tuberculosis Medical Officer, the homes are visited by voluntary workers, through whom necessary help is given in the way of extra food, loan of bedsteads and bedding, and assistance to find suitable employment, while endeavour is made to encourage and comfort the unfortunate sufferers and prevent them from losing heart and slipping down hill. Such an organisation is invaluable, and of the services rendered it is impossible to speak too highly. It is the logical corollary to the considerable expenditure by the Corporation upon the treatment of patients in sanatoria and otherwise, so much of which is apt to be entirely wasted owing to the relapse of the disease when the sufferer returns to his original unhealthy environment. Another direction in which development, for the purpose of consolidating progress attained by treatment, might well be effected is by extension of the present

purposes of Barrasford Sanatorium to include training in occupations suitable for recovered or arrested cases, a return to whose original trades would inevitably result in another breakdown.

There are two notable lacks in the local machinery, of which the first is open air schools for pre-tuberculous children, the second being convalescent accommodation for surgical cases after operation. Provision of the former has been under consideration by the Education Committee since 1918. A pointed and painful reminder of the need of the latter is the recent announcement by the Royal Victoria Infirmary of refusal in future to admit tuberculous cases requiring operation (the most certainly curable type of the disease) unless their home conditions are such as will permit of the rest, care and attention essential to their condition, since the pressure on the beds of that great institution does not allow of such cases being retained for prolonged and indefinite periods in hospital to the exclusion of many other patients.

It is satisfactory to note the good work being done by the Education Committee in the systematic care of children's teeth. This is an important step towards closing the door to infection.

Much is heard now-a-days of the value of direct sunlight in the cure of tuberculosis, and it is appropriate to refer here to the crying need for improvement of the atmospheric conditions in this, as in other great towns. With a soot fall in the centre of Newcastle equivalent to 513 tons per square mile per annum, it is obvious that there is still great room for improvement. The continual presence in the atmosphere of large quantities of minute particles of solid matter effectually cuts off a

great proportion of the sunlight that is our due and our need, and it is to be hoped that no effort will be spared to effect a much greater improvement than has already taken place, whether by substitution of gas and electricity for soft coal, or by other means.

Food and Provisions.—Bovine Tuberculosis.—165 samples of milk were examined for the presence of tubercle bacilli, which were found in 9, or 5·5 per cent. of them. This proportion is lower than in the previous year, when it was 6·3 per cent; but it was only 3·6 per cent. in 1919. The highest pre-war proportion was in 1912, when it reached 10·4 per cent. Owing to the lack of legal power and of an equal desire for action among the various Local Authorities concerned, there is still considerable difficulty in dealing with tuberculous milks.

Arising out of discovery of tubercle bacilli in a milk sample from Dumfriesshire the Medical Officer of Health for that County took the matter up with great vigour, and proved “guilty knowledge” on the part of the farmer concerned, whereupon the exemplary (!) fine of £3 was imposed.

The Veterinary Officer and Inspector of Provisions (MR. THOMAS PARKER, F.R.C.V.S.) reports that the City now contains 24 cow-keepers, occupying 38 cow-sheds, on 26 premises, with 575 milch cows, an increase of 10 cows since the previous year.

Inspection of the cow-sheds and dairies has not been as complete as it should be owing to the continued pressure of work in other directions, more particularly meat inspection. This is unfortunate, as more could be done by regular examination of cows in the City byres

to eliminate those yielding tuberculous milk and therefore extremely dangerous to young children.

The Sanitary Committee is well aware of the difficulties under which meat inspection is carried on in 102 separate premises situated in 15 different localities in the City, and how very largely the Veterinary Officer and his Inspectors are dependent upon the good-will and integrity of the butchers for information as to carcasses found in process of slaughter to be "not right," the prompt routine inspection of every animal killed being utterly impossible. There can be no question, therefore, that in however capable hands the duty of inspection may rest, and in spite of the excessive and irregular time worked by the staff, it cannot be complete under such conditions, nor will it be until centralised in a public abattoir.

Much was learned and much was gained in this respect during the period of Government control. That, however, has now ceased, unfortunately for the efficiency of inspection. Under it slaughtering was centralised and compensation was paid for animals condemned. No such compensation now being available, it naturally follows that animals at all likely to be seized do not come to Newcastle, where inspection is active, and consequently few cows are slaughtered within the City. This explains the fact that whereas in 1920, 1,229 carcasses, and 50 tons of meat were condemned, of which 187 were tuberculous, in 1921 only 199½ carcasses with 4 tons of meat, of which 78 carcasses were tuberculous, were seized. Government control may have been costly, but patchy work, such as exists when there is active inspection in one district and little or none in another, does undoubtedly redound to the disadvantage

of areas whose Authorities are less diligent in the execution of their responsibilities.

It is cheering to report the increasing number of arrivals of food-carrying ships in the Tyne, 189 having come to the Quayside, as compared with 61 in 1920. All imported articles were kept under supervision. No prosecutions were found necessary.

Mr. Parker rendered notable service upon the Departmental Committee on Meat Inspection, which issued a most important report towards the end of the year, from which may be anticipated considerable improvements upon the existing system. Mr. Parker was also a principal and convincing witness before the Royal Commission on the Importation of Store Cattle regarding the Canadian Cattle Embargo, towards the abolition of which he has striven for years.

Food and Adulteration Acts.—The Inspector under the Food and Drugs Acts (Mr. WM. HUDSPETH) reports the taking of 1,261 samples for analysis, including 1,068 of milk. Of the latter 662 were rough-tested in the Health Department, and appeared to be genuine, and of the remaining 406 the Public Analyst found 79 to be below the minimal limit fixed by the Sale of Milk Regulations, 1901. Of the 193 samples of food and drugs other than milk, 15 were found to be not genuine.

Since 1919 the proportion of milk samples certified “not genuine” has fallen from 11·5 to 7·4 per cent. 31 cases were taken to Court, and a conviction was obtained in 21 of them, with fines aggregating £58; cautions were issued in respect of 39, and no proceedings were taken, for various reasons, in 24. There were 12 offences other than adulteration, 9 of the offenders being

summoned. The penalties in these instances totalled £36. The remaining 3 were cautioned. Apart from the difficulty of obtaining convictions before the Magistrates in sophistication cases, the fines imposed are rarely such as are likely to serve as deterrents to the dishonest or culpably careless, or as an encouragement to those who are endeavouring to safeguard the people's food.

In addition 165 samples of milk were examined for evidence of excremental pollution, which was found to an undesirable degree in 99 (or 60 per cent.) There has been a most regrettable deterioration in cleanliness as judged by bacterial standards since pre-war days, and this can no longer be ascribed to the causes during the war, viz., shortage and unskilfulness of workers and prolonged and uncertain railway transport, with scarcity of fuel for steam and hot water production. The thinking members of the milk trade are themselves gravely concerned, and with the strong support of the Northern Dairymen's Association a strict insistence is now being made by the Health Department upon the rinsing of returned empty milk churns in the City before being put on rail, as a preventative of one undoubted source of contamination of fresh supplies. Milk churns that arrive back at the farms unrinsed teem with organisms, often are in a stinking condition, and are extremely difficult to sterilise or even cleanse. The new requirements were only put into force in December, consequently it is not yet possible to speak definitely upon the effects, which, however, would appear to be satisfactory.

Some 16 samples were examined for the presence of ponderable "dirt," but none contained moist sediment in excess of two parts per 100,000 of milk. As the

amount of sediment present is of little or no value in gauging the germ content of a milk, this method of examination was abandoned as useless.

One firm in the City retails Grade **A** (Certified) Milk obtained from one farm, and Grade **A** Milk (though this is not sold as such) from six farms. Bacteriological examinations of the last named (Grade **A**), have proved convincingly that the score card system is of little value in ensuring a germ-free milk, and the proposal to rely upon the ultimate product of the farm as it reaches the consumer, rather than the forms and ceremonies observed in producing the milk, is welcome.

Until the Milk and Dairies' Act comes into force, or some similar legal provision, it is almost hopeless to attempt to check the high proportion of polluted milk coming into the City. Is it surprising that the use of dried milk is extending? For there is no question that owing to its relative purity, and its low susceptibility to contamination it is a safer food for the young child, in humbler households at least, than the fresh article, preferable though that may be upon physiological grounds. Practically all the conditions in the present day transport of milk are thoroughly bad, and the responsibility for the condition of the article when it reaches the consumer lies just as much with the railway companies as with the producer and retailer.

There are 311 small general shops in which milk is sold. This represents a slight increase on 1920. In each case special precautions are insisted upon to prevent contamination, and the shops, though many are far from perfect, represent a considerable improvement upon those of pre-war times.

Strict supervision has been exercised over ice creameries, (manufacturing and retail), and numerous objections have been sustained to the commencement of businesses under unsuitable conditions. Margarine warehouses, bakehouses, restaurant kitchens, and fried fish shops have all been carefully watched. The fried fish shop is scheduled an offensive trade, and permits or refusals are provocative of more personal feeling than almost any other action of the Authority. Impartial control of ice cream and fried fish businesses is not rendered more easy by sentiment; many would-be starters are ex-service men, who frequently have the most sketchy ideas as to the methods of cleanliness and other precautions necessary, and who often elect to open on premises altogether lacking in essential facilities.

In 176 samples of water examined for evidence of excremental pollution, none was classified by the Bacteriologist as satisfactory, 58 were reported as doubtful, 97 as unsatisfactory, and 21 as bad—a cogent argument in favour of the recent Water Bill promoted by the Company to enable them to provide, *inter alia*, additional means of filtration.

The House and the Workplace—Nuisance Abatement.—The Inspector of Nuisances, (Mr. W. HUDSPETH), reports that the high cost of labour and materials, though substantially less than in the previous year, is still the prime factor in preventing necessary improvements from being carried out in the houses showing remediable defects. In spite of the difficulties referred to, however, 7,470 notices have been served, and in only 4 cases had legal proceedings to be resorted to. This reflects much credit upon the tactful management of Mr. Hudspeth and his assistants.

Many houses, which by pre-war standards are quite unfit for human habitation, are still occupied, and the shortage of alternative accommodation renders it impossible to close them out of hand. It is felt that it will be some years before the building operations now in progress and contemplated on the Walker and other estates will benefit, by the upward movement of those who can pay the higher rents, the poorer class of people in whose dwellings insanitary conditions and overcrowding are sadly in need of amelioration.

The Cleansing and Scavenging services (under the City Engineer) have not yet returned to their pre-war scale owing to the high cost entailed, but in no case is refuse removal carried out at a greater interval than a week.

Slightly greater progress has been made in the conversion of dry closets to the water carriage system, 58 pail closets, 88 cell privies, and 4 midden privies (150 in all), having been removed during the year, together with 42 dry ashpits.

There remain, however, 4,680 of these abominations in the City, and it is still the cost of conversion which stands in the way of more rapid sanitary progress being made in this direction.

Atmospheric Pollution, as measured at the observation station in Davison's Yard, City Road, amounted to a deposit, in that part of the town, at the rate of 16·1 cwt. of solid impurity per acre per annum, or 513 tons per square mile.

While this represents some improvement since 1916, when it was as high as 694 tons per square mile, much more has yet to be accomplished before man's

share in the exclusion of sunlight from our City has been effectively diminished.

781 observations were made of 91 chimneys, and 15 of them showed excessive output of black smoke on 16 occasions. There were no prosecutions undertaken, but a steady improvement occurred as the result of the strongly expressed warnings of the Committee. The gradual substitution of gas or electricity for the dirty and wasteful soft coal fire in the domestic grate is all to the advantage of the public health and economy.

The Corporation Housing Committee has rendered excellent service and set a fine example by providing in each of its new houses only one coal fire, the remainder being gas.

Housing.—For the first time for many years an appreciable number of houses has been added to the City's accommodation, viz:—29 erected privately, and 235 built by the Corporation on the Walker Estate, together with 41 by the conversion of the Naval Hostel at Walker. Some hundreds more were in course of construction at the end of the year in the Corporation's schemes. Although the grand total is only 305, and very many more houses are urgently needed, especially for the poorest classes, we must be thankful that a beginning has been made, since every little helps.

In November, 1921, the City Engineer's census shewed only 73 empty houses in the City as against 244 in August, 1914, and 1,305 at the end of 1912. Overcrowding is the rule, and sub-letting is on the increase everywhere. There is no means of controlling this last, and the exploitation of the unfortunate tenants of so-called "furnished lodgings" constitutes an absolute scandal.

Housing inadequacy is, next to poverty, the greatest handicap to health that we have to face. Fortunately our population is relatively well fed, and were it not so the mortality amongst our huddled masses would be terrible. Innumerable cases of gross overcrowding come to notice, sometimes two or three families of a dozen people or more in a couple of rooms, others entirely unable to obtain accommodation and ultimately finding shelter by breaking into condemned and foul cellars without any conveniences whatsoever. There is an echo to this in the schools, for it is reported that there are more verminous children being discovered there now, and this is ascribed to overcrowded conditions of the homes rendering it so much more difficult to keep the children clean.

As already mentioned disease incidence is intimately associated with housing. In 1921 the general death rate was 17·9 per 1,000 population in St. John's Ward, 9·6 in Arthur's Hill and 9·7 in Dene. In St. Andrew's Ward the death rate from consumption of the lungs was 2·26 per 1,000 population, whereas in Dene Ward it was 0·64 and Arthur's Hill Ward 0·68.

In St. John's Ward 123 babies under 1 year of age died to every 1,000 born, in Stephenson and Armstrong Wards 115, and in All Saints 114, whereas in Arthur's Hill there were no deaths at all under 1 year of age and in Jesmond the rate was only 25. Over a period of fourteen years the deaths of infants per 1,000 births in one room, two room, and three room houses have been respectively 149, 124 and 109.

Accommodation in the Common Lodging Houses continues to be ample. At the end of the year there

were 48 such houses on the register, as against 50 at the close of 1920, and 55 in 1919.

Factories and Workshops, Offices, Places of Amusement, and Schools.—7,883 inspections of factories and workshops were made and 448 notices to remedy defects were served. The homes of outworkers were also kept under observation.

Particular attention has been given by the Inspector of Nuisances and his assistants to Theatres and Cinemas, with special regard to cleanliness, ventilation and sanitary accommodation. A number of the larger and newer houses are admirably equipped with ventilating plant, but this is not always managed and controlled as it should be. In many of the smaller and less fashionable places the conditions are not satisfactory and it has been necessary to bring pressure to bear on the management to effect improvement. Experience of the influence of crowded audiences in insufficiently ventilated halls during the recent influenza pandemic showed the importance of attention to these vital matters. Many improvements have been effected in this connection throughout the City, the Ministry of Health Circular of 25th August, 1920, regarding the sanitary condition of theatres, music halls, etc., having proved a valuable means of coercing the owners.

6 samples of rag flock were obtained and submitted to the Public Analyst, and all were found to conform to the legal standard of cleanliness.

117 inspections were made at Council and other schools. In four instances certain minor defects and other insanitary conditions in connection with the conveniences, etc., were reported to the School Authorities, who had them remedied.

The Late Ald. Charles Thomas Stableforth, J.P.—Since the close of the year under report, the Committee has suffered the loss of its Chairman in the death of Alderman STABLEFORTH on April 21st, 1922.

Alderman Stableforth joined the Council and the Sanitary Committee in 1901, became Vice-Chairman of the Committee in 1913, in succession to the late Alderman John Armorer Baty, and in 1914 succeeded to the Chairmanship on the death of Alderman Sir Henry W. Newton, J.P.

By his exceptional shrewdness and ability, and his exceedingly keen and close interest in its work, Alderman Stableforth was for many years a source of great strength to the Health Department, and did much to advance its objects.

His death deprives the City of one of its ablest Councillors and most outstanding and powerful personalities.

Staff.—The demands upon the personnel of the Department were more than usually heavy during the year 1921, and again necessitated overtime being worked almost constantly, every man and woman doing his or her share loyally. Although many items not of immediate importance were regrettably delayed, all essentials of an urgent character were handled promptly.

At the City Hospital, administration was still complicated by the continued application of hard-and-fast limitations of hours of duty incompatible with the purposes of a hospital and the traditions of the healing professions. The subsequent rescinding of the Council's resolution was the only logical outcome.

The oldest member of the staff, Mr. WILLIAM GILLENDER, who had been Chief Clerk of the Department since his entry as a boy in 1876, retired in consequence of ill-health on August 5th, 1921, and it is a pleasure to record the highest appreciation of his long and devoted service. His influence in the Department was always for good, and is responsible in no small degree for the loyalty and efficiency of the staff as a whole.

To yourself, Sir, and to the other Members of the Committee are due my grateful acknowledgment of unfailing support and advice in circumstances frequently trying, and of effective practical assistance in divers directions. In expressing my pleasure at your election to the Chair, I would wish you a long, happy, and distinguished tenure of office.

I have the honour to be, Sir,

Your obedient servant,



M.D., D.P.H.

Medical Officer of Health.

Health Department,

Town Hall,

Newcastle-upon-Tyne,

10th August. 1922.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

Health Report, 1921.

I.—GENERAL.

MORTALITY TABLES, SOCIAL CONDITIONS,
CLIMATOLOGY, WATER SUPPLY, DISPOSAL OF REFUSE.

CITY AND COUNTY OF NEWCASTLE-UPON-TYNE.

POPULATION, BIRTH RATE, AND SPECIAL MORTALITY RATES DURING THE PERIOD OF THE NOTIFICATION OF INFECTIOUS DISEASES.

[illegible]

† Calculated on population for 1914.

1 Calculated on Population of 286,571.

^a Calculated on population of 287 255.² Civilians only.

§ (1) An inward transfer

[Under the heading of Minerals, Rubella is included from 1916 onwards.]

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GENERAL STATISTICS.

POPULATION.—As estimated by the Registrar General at the middle of the year 1921—**278,400.**

RETURN SHEWING THE ESTIMATED POPULATION OF THE DIFFERENT
WARDS IN THE CITY, ACREAGE, POPULATION PER ACRE, ETC.

Ward.	Population.	Gross Area in acres.	Less for Open Spaces in acres.	Nett Area in acres.	Population per acre, gross.	Nett.
St. Nicholas' ...	3,658	127	1	126	29	29
St. Thomas' ...	14,464	1,636	1,130	506	9	29
St. John's ...	15,742	169	1	168	93	93
Stephenson ...	19,226	215	...	215	89	89
Armstrong ...	16,021	178	31	147	90	109
Elswick ...	12,967	253	17	236	51	55
Westgate ...	15,651	90	1	89	174	176
Arthur's Hill ...	11,717	142	6	136	82	86
Benwell ...	18,030	550	20	530	33	34
Fenham ...	11,313	1,189	...	1,189	9	9
All Saints' ...	18,150	176	2	174	103	104
St. Andrew's ...	12,794	173	3	170	74	75
Jesmond ...	11,328	441	35	406	26	28
Dene ...	12,489	818	37	781	15	16
Heaton ...	15,897	225	76	149	71	107
Byker ...	17,925	140	...	140	128	128
St. Lawrence ...	18,363	181	3	178	101	103
St. Anthony's ...	16,182	601	...	601	27	27
Walker ...	16,483	1,149	37	1,112	14	15
CITY ...	278,400	8,453	1,400	7,053	33	39

INHABITED HOUSES.—**51,838**, shewing (each flat and each tenement holding being counted as one house) an average of 5·37 persons per dwelling.

RATEABLE VALUE.—**£1,931,061 10s. Od.** A penny rate produced £7,618.

SOCIAL CONDITIONS.—The principal **Trades and Occupations** are of a healthy nature, being generally engineering and machine making; conveyance of men, goods, and messages; building and works of construction, *e.g.*, ship building; and connected with ships and boats, sea-faring

and harbour work ; food, tobacco, drink, and lodging ; coal and shale mines ; and commercial or business occupations.

The amount of **Poor Law Relief** granted during the year ended 30th September, 1921, was £138,269 for outdoor relief, and £48,462 for indoor maintenance, making a total of **£186,731**, as compared with **£122,051** in the previous year.

There were from 25,000 to 30,000 registered unemployed during the greater part of the year.

The City contains many **Hospitals** and other medical charities, but as wide surrounding districts are also served by them, figures as to patients treated are not of local value.

MARRIAGES.—2,567 Marriages took place during the year, as compared with 3,036 in 1920, and 2,985 in 1919.

BIRTHS.—7,284, equivalent to a rate of **26·2** per 1,000 population.

DEATHS.—(All causes)—4,602, equivalent to an uncorrected rate of 16·5 per 1,000 population, and, after deduction of the deaths of 817 non-citizens, and addition of 142 Newcastle residents who died elsewhere, to a corrected rate of **14·1** per 1,000 population. In 1920 the death rate was 14·0.

6 deaths were *uncertified*, (2 Premature Births, 2 Convulsions, 1 Senile Decay and 1 Heart Disease).

14 **Orders for Burial** (Newcastle-upon-Tyne Improvement Act, 1882, Sec. 47) were given, 2 being in respect of bodies lying in inhabited rooms, and 12 being cases from hospital.

TOTAL DEATHS DURING RECENT YEARS FROM CERTAIN CLASSES OF
DISEASE.

Classification in Table III. of Ministry of Health.

	II. Nervous System.	III. Circu- latory.	IV. Respira- tory.	V. Digestive.	XIII. External Causes.
1912	410	435	603	204	152
1913	457	453	722	332	114
1914	448	505	863	465	142
1915	470	635	873	361	163
1916	477	448	856	281	117
1917	497	478	864	268	135
1918	498	503	957	252	135
1919	439	497	1,040	272	133
1920	384	534	861	275	124
1921	347	581	726	297	113

INFANTILE MORTALITY.— 699 infants died before completing the first year of life, representing a rate of **96** deaths per 1,000 births.

ZYMOTIC DEATH RATE.—There were 353 deaths from the “Chief Zymotic Diseases”—Smallpox, Measles, Scarlet Fever, Diphtheria, Whooping Cough, Fever (Typhus, Simple Continued, and Enteric) and Diarrhœa,—equivalent to 1·2 deaths per 1,000 population.

TUBERCULOSIS.—451 persons died from various forms of Tuberculosis, 348 being from Pulmonary, and 103 from Other Forms. The equivalent death rates are *All Forms* **1·62**, *Pulmonary* **1·25**, and *Other Forms than Pulmonary* **0·37** per 1,000 population.

For comparison of death rates with previous years see large table, page 40A.

For particulars of deaths, as to site of disease, age, etc., see table, page 47A.

GEOLOGY.—The geological formation of the area consists of heavy clay on the top of hard sandstone, which overlies coal seams.

CLIMATOLOGY.—The mean barometer reading was 30·03 in.

The mean maximum temperature was 59·0° F., and the mean minimum 35·4° F.

Measureable rain fell on 157 days, amounting in all to 23·48 inches, and as the district average is 27·98 inches, there was a deficiency of 4·41 inches.

The year 1921 was really a period of severe drought, in spite of the number of wet days. Every month in the year showed a shortage of rainfall except January, August, and November. In the first two the rainfall was extraordinarily high.

August was the wettest month of the year, and, indeed, it was the wettest month for 21 years. The rainfall on 24 days amounted to 6·05 inches, altogether giving a surplus of 3·34 in. January, with a total of 4·73 inches, exceeded the normal quantity by 2·92 inches, and November, with a total of 2·57 inches, was 0·17 inches over its average.

The wettest day was August 29th, when 2·46 inches of rain fell.

The driest months were February, with 0·13 inches of rain; March, with 0·78 inches, and June, with 0·62 inches.

The prevailing winds were westerly, frequency of direction being noted as follows :—

W., N.W., or S.W. on 181 days.

E., N.E., or S.E. on 98 days.

S. on 33 days.

N. on 32 days.

This information is supplied through the courtesy of the proprietors of the *Newcastle Chronicle*.

WATER SUPPLY.—The City is served by the Newcastle and Gateshead Water Company with a plentiful supply of pure upland surface water, collected from large catchment areas at Catcleugh, close to the Cheviots, and in lower Northumberland.

It is stored in large impounding reservoirs at Catcleugh, Hallington, and Whittle Dene, and passes through sand filters at Whittle Dene and Throckley.

In the vast majority of cases the household taps are served directly from the mains without intervening cisterns.

A separate trade supply is piped to some of the great riverside works from a point above the filters.

The Bacteriological reports upon the water samples are given on page 109.

The consumption of water in the City has increased of late years, chiefly on account of the greater requirements of industry. Coincidentally there has been no increase in the area of the filter beds, nor in the storage capacity of the reservoirs, and it is not surprising that the results of the bacteriological examinations should show a somewhat high degree of organismal contamination, although the water is of high chemical purity.

SEWERAGE.—There are 280 miles and 1,500 yards of sewers discharging at various points along the seven miles of river frontage directly into the Tyne, which is tidal.

CLEANSING AND SCAVENGING.—With the exception of certain areas, the ashbins are now only emptied once per week instead of twice. With the prevailing high costs it is improbable that the frequency of removal can be increased.

There are 52,618 dry ashtubs and galvanised iron bins, and 52,022 water closets and 4,680 conservancy system closets in the City. Conversion of the latter was proceeding steadily up to the outbreak of War, at the rate of 600 to 700 per annum. During 1921, 58 pailclosets, 88 cell privies and 4 privies and 3 ashpits were removed and water closets substituted. All the schools are served by the water-carriage system.

VITAL STATISTICS, YEAR 1921.
COMPARISON WITH OTHER DISTRICTS.

DISTRICT.	Birth Rate.	General Death Rate.	Infantile Mortality Rate.	Death Rate per 1000 from Enteric Fever, Smallpox, Scarlet Fever, Measles, Whooping Cough, and Diphtheria	Tubercul- osis (all causes) Death Rate.
England and Wales	22·4	12·1	83	0·58	†
105 Great Towns (includ. London)	23·3	12·3	87	0·64	†
NEWCASTLE-UPON-TYNE	26·2	14·1	96	0·69	1·62
Hull	25·8	13·0	93	0·26	1·41
Leeds	21·8	13·5	98	0·27	1·37
Bradford	19·6	13·7	109	0·47	1·16
Sheffield	23·8	12·5	99	0·37	1·24
Manchester	23·7	13·6	97	0·46	1·64
Salford	25·2	13·9	106	0·40	1·63
Liverpool	26·8	14·3	107	0·84	1·60
Nottingham	23·04	13·1	102	0·27	1·14
Leicester	21·4	12·1	86	0·26	1·47
Stoke-on-Trent	29·0	14·8	134	0·22	1·48
Birmingham	24·1	11·3	83	0·45	1·13
Cardiff	24·0	12·0	94	0·21	1·49
Bristol	22·03	11·4	68	0·48	1·08
Portsmouth	22·9	11·2	63	0·35	1·10
London (County)	22·3	12·4	80	0·49	1·25
Gateshead	29·8	14·4	106	0·68	1·64
South Shields	29·6	15·2	96	0·74	1·80
Tynemouth	26·7	13·7	103	0·64	1·53
Sunderland	30·7	15·3	111	0·92	1·45
Middlesbrough	31·6	14·4	118	0·54	1·21
*County of Northumberland ...	25·5	12·4	95	0·61	1·25
*County of Durham	30·05	13·01	109	0·62	1·29

* Administrative County.

† Figures not available.

TABLE I. OF MINISTRY OF HEALTH.

Vital Statistics of Whole District during 1921 and previous Years.

YEAR.	Population estimated to Middle of each Year.	BIRTHS.			TOTAL DEATHS REGISTERED IN THE DISTRICT.		TRANSFERABLE DEATHS		NETT DEATHS BELONGING TO THE DISTRICT.			
		Uncorrected Number	Nett.		Number	Rate.	of Non-residents registered in the District	of Residents not registered in the District	Under 1 Year of Age.		At all Ages.	
			Number	Rate.					Number	Rate per 1,000 Nett Births.	Number	Rate.
1	2	3	4	5	6	7	8	9	10	11	12	13
1906	257,113	8,210			4,831	18·8						
1907	259,082	8,093			4,594	17·7						
1908	261,065	8,382			4,801	18·4						
1909	263,064	7,682			4,459	16·9						
1910	265,077	7,543			4,252	16·0						
1911	267,261	7,089	7,082	26·5	4,667	17·5	448	165	973	137	4,384	16·4
1912	269,193	7,219	7,194	26·7	4,221	15·7	529	146	727	101	3,838	14·5
1913	271,295	7,480	7,460	27·5	4,611	17·0	560	141	908	122	4,192	15·5
1914	271,523	7,564	7,538	27·8	5,069	18·7	546	138	1,029	137	4,660	17·2
1915	278,107	7,575	7,545	27·8†	5,257	18·9	693	207	1,007	133	4,771*	17·2*
1916	278,107	7,332	7,284	26·2	4,875	17·5	680	232	899	123	4,427*	15·9*
1917	278,107	6,548	6,495	23·4	4,646	16·7	718	246	732	113	4,174*	15·0*
1918	278,107	6,555	6,468	23·3	5,380	19·3	872	308	692	107	4,816*	17·3*
1919	275,099	6,793	6,674	23·3§	5,358	19·5	737	234	806	120	4,855*	17·6*
1920	286,061	8,433	8,070	28·0‡	4,609	16·1	779	195	817	101	4,025	14·0
1921	278,400	7,720	7,284	26·2	4,602	16·5	817	142	699	96	3,927	14·1

Area of District in acres (exclusive of area covered by water) 8,453. Total population at all ages at census 1911, 266,603.

† In accordance with the instructions of the Supt. of Statistics, General Register Office, Somerset House, this rate is calculated on the population for 1914. * Civilians only.

§ Calculated on a population of 286,571. ‡ Calculated on a population of 287,255.

Corrected Death Rates in different Wards, 1921.

St. Nicholas'.	St. Thomas'.	St. John's.	Stephenson.	Armstrong.	Elswick.	Westgate.	Arthur's Hill.	Benwell.	Fenham.	All Saints'.	St. Andrew's.	Jesmond.	Dene.	Heaton.	Byker.	St. Lawrence.	St. Anthony's.	Walker.	City.
12·6	13·9	17·9	14·4	15·4	16·0	13·2	9·6	14·9	11·1	17·3	15·2	11·1	9·7	12·7	14·9	14·4	13·5	14·7	14·1

* All deaths occurring in Public Institutions have been allotted to the Wards to which they properly belong.

TABLE II. OF MINISTRY OF HEALTH.

(See under **Infectious Diseases**, page 83).

TABLE IV. OF MINISTRY OF HEALTH.

(See under **Infantile Mortality**, page 52A).

TABLE III. OF THE MINISTRY OF HEALTH.
RETURN OF DEATHS FROM "ALL CAUSES" DURING THE 52 WEEKS ENDED 31ST DECEMBER, 1921.

CAUSE OF DEATH.	AGE PERIODS.																	WARDS—NETT DEATHS.																	TRANS-FERABLE DEATHS.		Deaths in Institutions in the City of Residents or Non-Residents.																																															
	GROSS.								NETT.									St. Nicholas.	St. Thomas.	St. John's.	Stephenson.	Armstrong.	Elswick.	Westgate.	Arthur's Hill.	Benwell.	Fenham.	All Saints.	St. Andrew's.	Desmond.	Dene.	Heaton.	Baker.	St. Lawrence.	St. Anthony's.	Walker.		TOTAL.	Inward.	Outward.	Nett Deaths.																																											
	Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	TOTAL.	Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.																									TOTAL.																																										
I.—General Diseases.																																																																																				
Enteric Fever	21	48	22	5	...	2	1	1	5	...	21	49	21	5	...	2	1	1	5	...	1	1	1	5	5	...	2																																											
Measles	2	7	4	...	1	97	...	21	49	21	5	...	1	97	...	3	11	7	11	1	1	...	7	4	...	7	6	...	1	3	10	7	9	10	97	1	1	97	7																																								
Scarlet Fever	27	16	11	3	13	...	27	17	11	3	12	...	2	1	2	4	5	...	2	4	...	3	5	...	1	1	2	12	...	1	12	...	10																																											
Whooping Cough	1	2	7	11	...	1	57	...	1	2	8	11	58	...	2	5	8	4	4	5	...	1	1	1	1	3	2	1	...	22	1	1	22	14																																									
Diphtheria	1	22	22	...	1	...	2	3	3	3	...	1	1																																											
Croup	1	1																																											
Influenza	5	3	2	3	5	14	18	16	66	...	5	3	2	3	4	14	19	15	65	...	1	3	6	4	6	3	2	8	3	4	2	2	1	2	65	1	2	65	...																																										
Erysipelas	1	1	2	3	3	7	...	1	1	2	3	7	2	1	1	2	1	7	7	...																																											
Pyæmia, Septicæmia	2	1	3	3	2	11	...	1	1	2	2	6	1	1	1	2	1	6	6	...																																											
Tetanus	1	1	1	3	1	1	1	1	...																																												
Pulmonary Tuberculosis (not acute)	2	8	7	21	69	138	86	7	338	2	6	6	21	69	144	84	7	339	6	13	20	15	21	14	17	9	17	14	31	29	12	7	18	37	28	12	19	339	20	19	339	107																																										
Acute Phthisis	1	1	2	4	1	1	1	2	...	4	4	4	...																																												
Acute Miliary Tuberculosis	1	2	1	1	5	1	2	1	1	5	2	5	5	...																																												
Tuberculous Meningitis	7	6	11	24	5	4	1	...	58	5	6	10	19	4	2	1	...	47	...	2	5	4	7	...	1	...	5	...	3	2	...	1	...	3	4	4	4	47	...	11	47	29																																										
Tuberculosis of Peritoneum and Intestines	4	5	3	10	8	1	31	4	5	2	7	4	1	23	...	2	1	...	2	...	3	...	6	...	3	1	...	1	...	1	1	1	1	23	...	8	23	9																																										
Tuberculosis of Spinal Column	2	...	4	2	1	2	...	11	...	2	...	3	2	1	1	...	9	1	2	...	1	1	...	1	1	9	...	2	9	3																																												
Tuberculosis of other Organs . . . . .	...	1	1	2	...	1	...	...	5	...	...	...	1	1	...	...	...	2	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	2	...	3	2	3																							
Disseminated Tuberculosis . . . . .	...	1	4	7	4	4	3	...	23	...	...	4	5	5	5	3	...	22	1	...	...	...	1	2	1	1	4	...	3	...	...	...	...	...	22	2	3	22	7																																		
TOTAL TUBERCULOSIS																																											13	22	27	69	92	150	95	7	475	11	19	23	58	87	155	91	7	451	7	17	29	22	31	18	22	10	33	14	42	33	12	9	24	45	37	20	26	451	22	46	451	162
Rickets, Softening of Bones	5	4	1	10	5	3	8	1	...	2	3	1	8	...	2	8	...	3																																											
Syphilis	11	1	5	3	...	20	11	1	3	3	...	18	...	2	3	1	2	...	3	2	1	18	1	3	18	12																																										
Gonorrhœa	1	1	2	1	1	2	2	2	...	2																																												
Cancer of the Buccal Cavity	2	1	...	21	19	43	2	1	1	19	14	37	1	4	1	6	1	2	1	3	1	1	6	1	...	1	1	3	2	1	1	37	1	7	37	26																																										
Cancer of the Stomach, Liver, etc.	19	76	35	...	130	14	51	32	97	1	5	7	3	2	3	10	3	7	3	4	6	4	5	6	8	7	6	7	97	2	35	97	44																																										
Cancer of the Peritoneum, Intestines, and Rectum	1	...	2	10	45	39	97	1	...	1	7	30	27	66	1	10	5	2	7	1	4	3	6	1	3	4	5	1	3	2	3	4	1	66	...	31	66	40																																										
Cancer of the Female Genital Organs	6	25	9	...	40	5	21	7	33	1	...	4	1	2	1	3	1	2	...	2	1	...	2	3	2	4	3	1	33	...	7	33	17																																										
Cancer of the Breast	2	15	10	...	27	2	13	10	25	...	2	1	2	...	1	1	1	2	2	2	...	1	1	3	1	5	25	...	2	25	2																																										
Cancer of the Skin	1	1	...	2	1	1	2	2	2	...																																												
Cancer of other or unspecified Organs	1	...	1	...	4	28	22	...	56	1	...	...	1	...																																																																				

TABLE III. OF THE MINISTRY OF HEALTH.—Continued.

RETURN OF DEATHS FROM "ALL CAUSES" DURING THE 52 WEEKS ENDED 31ST DECEMBER, 1921.

CAUSE OF DEATH.	AGE PERIODS.																		WARDS—NETT DEATHS.																				TRANS-FERABLE DEATHS.		Nett Deaths.	Deaths in the City of London or Non-Residents.		
	GROSS.									NETT.									St. Nicholas'.	St. Thomas'.	St. John's.	Stephenson.	Armstrong.	Elswick.	Westgate.	Arthur's Hill.	Benwell.	Fenham.	All Saints.	St. Andrew's.	Jesmond.	Dene.	Heaton.	Byker.	St. Lawrence.	St. Anthony's.	Walker.	TOTAL.	Inward.	Outward.				
	Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	TOTAL.	Under 1 year.	1 year and under 2.	2 years and under 5.	5 years and under 15.	15 years and under 25.	25 years and under 45.	45 years and under 65.	65 years and above.	TOTAL.																										
Brought forward	285	232	143	161	186	443	824	792	3,066	274	220	132	133	153	388	743	768	2,811	36	144	210	188	173	148	157	93	191	85	238	145	96	80	144	197	175	150	161	2,811	109	364	2,811	924		
V.—Diseases of Digestive System.																																												
Diseases of the Teeth and Gums	1	1	...	1	2	...	5	1	1	...	1	1	...	4	1	1	1	1	...	4	...	1	4	1	...	
Diseases of the Pharynx, Tonsillitis	2	1	...	1	2	...	1	...	7	2	2	1	...	4	1	1	2	...	3	4	6	...			
Diseases of the Oesophagus	1	1	2	1	1	2	1	1	2	...	1	...	
Perforating Ulcer of Stomach	2	16	12	4	34	4	3	4	11	...	2	...	3	...	1	1	...	1	1	...	1	1	1	...	1	11	...	23	11	23	...		
Inflammation of Stomach	3	1	1	1	1	...	2	3	12	3	1	1	1	1	...	1	3	11	2	2	1	...	1	1	...	1	11	...	1	11		
Other Diseases of the Stomach	2	2	6	2	1	1	4	1	1	4	...	2	4		
Diarrhoea and Enteritis (under 2 years). including Dysentery, Epidemic or Zymotic Enteritis, and Intestinal Catarrh	93	32	125	91	29	120	2	3	8	12	7	8	2	...	16	2	16	6	1	1	2	7	11	9	7	120	2	7	120	36		
Diarrhoea and Enteritis (2 years and over)	12	5	4	15	16	9	61	10	3	2	8	8	8	39	...	1	3	3	7	5	1	3	1	3	1	...	1	1	3	2	1	39	...	22	39	26		
Other Intestinal Parasites	1	1	1	1	1			
Appendicitis	3	13	7	12	7	2	44	2	4	2	3	2	2	15	...	2	1	1	1	1	1	...	2	2	1	15	...	29	15	35	...		
Hernia, Intestinal Obstruction	15	2	...	6	7	14	39	27	110	10	3	2	3	15	16	49	...	2	6	4	4	1	3	4	4	3	2	1	1	5	4	4	49	1	62	49	82	...		
Other Diseases of the Intestines	1	1	2	4	1	1	1	...	3	1	3	...	1	3			
Acute Yellow Atrophy of Liver	2	2	2	2	1	1	2	1			
Hydatid of Liver	1	1	1	...	1			
Cirrhosis of the Liver (not alcoholic)	...	1	4	11	1	17	3	9	1	13	2	2	1	...	1	...	4	...	1	1	...	1	13	...	4	13	8	...	
Biliary Calculi	1	2	11	3	17	1	...	1	1	3	1	1	3	...	14	3	12	...			
Other Diseases of the Liver	1	...	2	15	5	23	1	...	1	6	1	9	1	1	2	2	...	2	1	...	9	...	14	9	14	...	
Peritonitis (cause unstated)	2	3	1	3	2	2	13	2	...	1	1	1	5	1	1	1	1	...	1	...	5	...	8	5	9	...		
Other Diseases of the Digestive System	1	2	1	4	1	...	1	1	1	...	3	...	3	1	2	...	
VI.—Non-Venereal Diseases of Genito-Urinary System and Annexa.																																												
Acute Nephritis	1	2	1	2	1	7	7	...	21	...	1	1	2	1	5	5	...	15	...	1	...	1	1	1	1	1	2	2	3	2	...	15	...	6	15	11	...
Bright's Disease	1	4	3	14	64	41	127	3	1	10	57	39	110	1	9	8	4	8	7	7	5	...	4	2	8	8	6	3	7	3	7	6	7	110	5	22	110	47	...
Other Diseases of the Kidney and Annexa	1	6	7	6	20	5	3	5	13	1	1	1	1	1	1	2	...	1	1	...	2	1	...	13	...	9	13	11	...		
Calculi of the Urinary Passages	2	...	1	1	...	4	1	1	...	2	1	2	2	4	2	4		
Diseases of the Bladder	1	1	5	7	5	5	1	...	1	1	1	5	...	2	5	4	...		
Diseases of the Urethra, Urinary Abscess, &c.	1	1	8	4	14	4	2	6	1	1	1	...	6	...	8	6	12	...			
Diseases of the Prostate	6	18	24	1	7	8	1	1	1	2	...	3	8	...	16	8	14	...			
Uterine Hemorrhage (non-puerperal)	1	1		
Uterine Tumour (non-cancerous)	3	3	...	6	2	...	2	1	1	...	2	...	4	2	4	...		
Other Diseases of the Uterus	3	1	...	4	2	1	3	1	1	...	3	...	1	3	1	...			
Ovarian Cyst, Tumour (non-cancerous)	4	4	1	9	1	1	2	1	2	...	7	2	6	...				
Other Diseases of the Female Genital Organs	2	3	1	...	6	1	1	2	1	2	...	4	2	4			
VII.—The Puerperal State.																																												
Abortion	8	8	4	4	...	1	1	1	4	...	4	4	5	...		
Accidents of Pregnancy	2	2		
Puerperal Hemorrhage	1	9	10	6	6	...	1	1	1	1	6	...	4	6	5	...			
Other Accidents of Childbirth	6	6	3	3	2	3	...	3	3	2	...				
Puerperal Fever	4	6	...	10	4	1	5	1	...	1	5	...	5	5	8	...				
Puerperal Albuminuria and Convulsions	4	5	...	9	2	3	5	5	...	4	5	7	...				
Puerperal Insanity	1	1	1	1	1	1				
VIII.—Diseases of Skin and Cellular Tissue.																																												
Senile Gangrene	4	7	...	11	3	7	10	1	...	2	1	1	2	...	1	10	...	1	10	4	...		
Gangrene, other types	1	...	2	...	1	3	1	1	9	1	...	1	1	...	1	4	...	1	...	1	4	...	5	4	8	...				
Carbuncle Boil	1	2	...	3	1	2	1	4	...	1	1	4	1			
Phlegmon, Acute Abscess	2	...	3	1	1	6	13	1	...	1	...	1	4	...	7	...	2	1	1	...	1	1	...	7	...	6	7	9	...				
Diseases of the Integumentary System	4	...	1	1	6	4	...	1	6	1	1	6	6	...	2	...			
IX.—Diseases of Bones, etc.																																												
Diseases of the Bones	1	1	4	4	2	1	13	1	3	4	1	1	1	1	...	4	...	9	4	12	...		
Diseases of the Joints	1	1	2	4	2	2	1	2	...	2	2	...	3	...			
X.—Malformations.																																												
Congenital Malformations	39	1	1	2	...	1	44	30	2	...	1	33	2	2	1	1	5	...	2	1	2	4	3	3	4	3	...	33	...	11	33	14	...	
XI.—Diseases of Early Infancy.																																												
Premature Birth	173	...	...	...	...	...	...	...	173	1																																

REPORT OF THE
MATERNITY AND CHILD WELFARE
MEDICAL OFFICER.

II.—THE CHILD.

INFANTILE MORTALITY, MATERNITY AND
CHILD WELFARE.

INFANTILE MORTALITY.

SUMMARY OF BIRTHS AND DEATHS, 1921.

	LEGITIMATE.			ILLEGITIMATE.			Grand Total.
	M.	F.	Total.	M.	F.	Total.	
Total Births in the Year	3,817	3,544	7,361	179	180	359	7,720
Nett ,, ,,	3,620	3,361	6,981	156	147	303	7,284
Nett Deaths ,, (under 1 year of age).	376	273	649	25	25	50	699

BIRTHS (CORRECTED) IN WARDS IN THE DIFFERENT QUARTERS OF THE YEAR 1921.

WARD.	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	TOTALS.
St. Nicholas' 	11	28	19	18	76
St. Thomas' 	61	69	64	85	279
St. John's 	129	124	117	101	471
Stephenson	138	155	124	122	539
Armstrong	128	111	125	105	469
Elswick 	71	78	77	67	293
Westgate 	114	95	99	107	415
Arthur's Hill 	26	24	36	40	126
Benwell 	163	141	137	134	575
Fenham 	76	83	82	75	316
All Saints' 	117	137	144	101	499
St. Andrew's 	78	106	59	66	309
Jesmond 	40	60	60	42	202
Dene... 	59	45	50	49	203
Heaton 	88	87	76	66	317
Byker 	146	122	152	100	520
St. Lawrence 	140	158	156	144	598
St. Anthony's 	141	134	158	126	559
Walker 	132	123	144	119	518
City	1,858	1,880	1,879	1,667	7,284

DISTRIBUTION OF DEATHS.

WARDS.	Nett Deaths of Children under 1 year of age in 1921.					Children under 1 year of age— Death rate per 1,000 Births.	Birth Rate per 1,000 Popula- tion (cor- rected).
	1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.	Whole Year.		
St. Nicholas' ...	2	...	2	2	6	79	20·7
St. Thomas' ...	3	5	7	6	21	75	19·3
St. John's ...	23	10	14	11	58	123	29·9
Stephenson ...	20	10	23	8	61	115	28·0
Armstrong ...	20	15	10	9	54	115	29·3
Elswick ...	9	8	8	7	32	109	22·6
Westgate ...	11	10	9	12	42	101	26·5
Arthur's Hill ...	...	...	...	...	...	...	10·8
Benwell ...	10	11	25	14	60	104	31·9
Fenham ...	6	4	9	6	25	79	27·9
All Saints' ...	17	10	16	14	57	114	27·5
St. Andrew's ...	11	9	3	8	31	100	24·1
Jesmond ...	1	1	2	1	5	25	17·8
Dene ...	9	6	2	3	20	98	16·2
Heaton ...	6	4	7	5	22	69	19·9
Byker ...	16	15	8	8	47	90	29·0
St. Lawrence ...	16	12	14	13	55	94	32·5
St. Anthony's ...	21	4	12	16	53	95	34·5
Walker ...	20	11	12	7	50	96	31·4
City ...	221	145	183	150	699	96	26·2

All deaths occurring in Public Institutions have been allotted to the Wards to which they properly belong.

TABLE IV. OF MINISTRY OF HEALTH.

52A

RETURN OF DEATHS UNDER ONE YEAR OF AGE DURING THE 52 WEEKS ENDED 31ST DECEMBER, 1921.

CAUSE OF DEATH.	AGE PERIODS.																				Deaths in Institutions in the City of "Residents" or "Non-Residents."
	GROSS.										NETT (after allowing for transfers).										
	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-3 Months.	3-6 Months.	6-9 Months.	9-12 Months.	Total under 1 Year of Age.	Under 1 Week.	1-2 Weeks.	2-3 Weeks.	3-4 Weeks.	Total under 1 Month.	1-3 Months.	3-6 Months.	6-9 Months.	9-12 Months.	Total under 1 Year of Age.	
I.—General Diseases.																					
Measles	1	2	15	3	21	...	...	...	...	...	1	2	15	3	21	1
Whooping Cough	9	5	8	5	27	...	...	...	...	...	9	5	8	5	27	1
Diphtheria	1	1	...	...	...	...	...	...	...	...	1	1	1
Influenza	2	1	1	1	5	...	...	...	...	...	2	1	1	1	5	...
Erysipelas	1	1	...	...	...	...	1	...	...	1	...	1	...	...	...	...	1	...
Pyæmia, Septicæmia	1	1	1	...	...	...	2	...	...	...	1	1	...	...	...	...	1	1
Pulmonary Tuberculosis (not acute)...	1	1	...	...	2	...	...	...	...	...	1	1	...	...	2	2
Tuberculous Meningitis	3	...	2	2	7	...	...	...	...	...	2	...	1	2	5	...
Tuberculosis of Peritoneum and Intestines	1	2	1	...	4	...	...	...	...	...	1	2	1	...	4	...
TOTAL TUBERCULOSIS	5	3	3	2	13	...	...	...	...	...	4	3	2	2	11	2
Rickets, Softening of Bones	2	2	1	5	...	...	...	...	...	...	3	2	...	5	...
Syphilis	3	1	1	5	2	2	2	...	11	3	1	1	...	5	1	2	2	1	11	5
Gonorrhœa	1	1	...	...	...	...	1	...	...	1	1	1	...	...	...	...	1	1
Cancer of Groin	1	...	...	1	...	...	...	...	...	...	1	...	...	1	...
Anæmia	1	...	...	1	...	...	...	...	...	...	...	...	...	...	1
Purpura Hæmorrhagica	1	1	...	...	...	...	1	...	...	1	...	1	...	...	...	...	1	...
II.—Diseases of Nervous System and Organs of Special Sense.																					
Meningitis	3	3	1	7	...	...	...	...	...	1	3	2	1	7	1
Cerebral Hæmorrhage	1	...	...	1	...	...	...	...	1	1	...	...	...	1	...	...	...	...	1	...
Infantile Convulsions	9	8	4	23	11	4	2	2	42	8	7	4	2	21	11	3	2	2	39	1
Epilepsy	1	...	1	...	...	...	...	...	...	...	1	...	1	...
Diseases of the Eye and Annexa	1	...	1	...	...	...	...	1	...	1	...	...	1	...	...	...	...	1	1
Diseases of the Ears	1	2	1	...	4	...	...	...	...	...	1	1	...	...	2	2
III.—Diseases of Circulatory System.																					
Valvular Disease of the Heart	1	1	...	...	...	...	...	...	...	...	1	1	...
IV.—Diseases of Respiratory System.																					
Diseases of the Larynx	1	...	...	1	...	...	...	...	1	1	...	...	...	1	...	...	...	...	1	...
Bronchitis	5	1	7	21	10	7	8	53	...	5	1	1	7	21	10	7	8	53	1
Broncho-pneumonia	1	...	2	16	19	10	19	66	1	...	1	...	2	16	18	10	18	64	9
Lobar Pneumonia	1	...	...	1	...	...	...	...	...	...	1	...	...	1	...
Pneumonia (type not stated)	1	1	3	5	4	4	17	...	...	1	...	1	3	5	4	4	17	...
V.—Diseases of Digestive System.																					
Stomatitis	1	1	...	...	...	...	1	...	...	1	...	1	...	...	...	...	1	...
Tonsilitis	1	...	1	2	...	...	...	...	...	...	1	...	1	2	2
Inflammation of Stomach	1	1	1	1	...	...	3	...	...	1	...	1	1	1	...	...	3	...
Other Diseases of the Stomach	1	...	...	1	1	...	...	...	2	1	...	...	...	1	1	...	...	...	2	...
Diarrhœa and Enteritis <i>including</i> Dysentery, Epidemic or Zymotic Enteritis, and Intestinal Catarrh	1	1	35	30	19	8	93	...	...	...	1	1	36	28	18	8	91	25
Hernia and Intestinal Obstruction	1	2	5	5	2	1	15	1	...	1	...	2	2	4	1	1	10	10
Intestinal Hæmorrhage	1	...	...	...	...	1	1	...	...	...	1	...	...	...	...	1	...
Carried forward ...	18	15	13	6	52	114	98	80	58	402	17	14	13	6	50	110	92	75	57	384	65

TABLE IV. OF MINISTRY OF HEALTH.—Continued.

RETURN OF DEATHS UNDER ONE YEAR OF AGE DURING THE 52 WEEKS ENDED 31ST DECEMBER, 1921.

CAUSE OF DEATH.					AGE PERIODS.																	Deaths in Institutions in the City of "Residents," or "Non-Residents."				
					GROSS.							NETT (after allowing for transfers).														
					Under 1 Week.	1—2 Weeks.	2—3 Weeks.	3—4 Weeks.	Total under 1 Month.	1—3 Months.	3—6 Months.	6—9 Months.	9—12 Months.	Total under 1 Year of Age.	Under 1 Week.	1—2 Weeks.	2—3 Weeks.	3—4 Weeks.	Total under 1 Month.	1—3 Months.	3—6 Months.			6—9 Months.	9—12 Months.	Total under 1 Year of Age.
Brought forward ...					18	15	13	6	52	114	98	80	58	402	17	14	13	6	50	110	92	75	57	384	65	
VI.—Non-Venereal Diseases of Genito-Urinary System and Annexa.																										
Acute Nephritis	1	1	1	
Bright's Disease	1	...	1	1	
VII.—Diseases of Skin and Cellular Tissue.																										
Cancrum Oris ... ..					...	...	1	...	...	...	...	...	1	...	1	...	...	1	...	...	...	...	1	1
Phlegmon, Acute Abscess ... ..					...	...	...	...	...	2	...	...	...	2	...	...	...	...	1	...	...	...	1	2
Diseases of the Integumentary System ... ..					...	1	...	1	...	2	1	...	...	1	4	1	...	1	...	...	...	1	4	...
VIII.—Diseases of Bones, &c.																										
Acute Osteitis ... ..					...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	1	1	1
IX.—Malformations.																										
Congenital Malformations	17	4	...	2	23	9	5	1	1	39	13	2	...	2	17	6	5	1	1	30	9
X.—Diseases of Early Infancy.																										
Premature Birth	129	13	11	8	161	11	1	173	120	12	10	8	150	11	1	162	20
Infantile Atrophy, Debility, and Marasmus	29	9	7	4	49	46	9	3	3	110	26	9	7	4	46	39	6	1	3	95	21
Icterus Neonatorum, Sclerema and Œdema Neonatorum	2	2	1	3	2	2	1	3	3
Other Diseases peculiar to early infancy	16	2	18	1	19	13	1	14	14	5
XI.—Affections produced by External Causes.																										
Burns	2	2	1	1	1	
Homicide—Strangulation	1	1	1	1	1	1	...
Suffocation	1	1	1	1	...
XII.—Ill-defined Causes.																										
Ill-defined Causes...	1	1	1	1	...	
TOTAL	213	44	32	20	309	186	113	85	68	761	193	39	31	20	283	170	104	77	65	699	130

SUMMARY OF MORTALITY, 1901-1921.

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Death-rate of Infants <i>under 1 year</i> per 1,000 births ...	177	139	166	155	138	153	126	139	122	123	137	101	122	137	133	123	113	107	120	101	96
Death-rate of Infants <i>under 3 months</i> per 1,000 births	83·8	74·8	84·9	82·6	71·6	75·6	68·6	76·6	64·8	66·9	71·5	60·3	67·7	70·7	68·2	66·2	58·7	37·7	64·1	62·1	61·0
Death-rate of Infants from <i>Premature Birth</i> , per 1,000 births ...	20·1	20·7	25·1	20·9	19·7	22·0	21·2	24·8	19·8	18·8	21·7	19·3	22·0	19·5	24·0	22·0	22·3	27·4	24·6	20·6	22·2
Death-rate of Infants <i>under 1 year</i> per 1,000 births, from <i>Premature Birth</i> , plus all <i>Congenital Causes</i> * ...	40·8	51·7	62·1	60·6	52·1	61·5	43·0	44·6	42·3	42·6	43·9	48·0	57·4	51·1	56·6	51·0	46·0	45·3	51·5	43·1	39·0
Death-rate of Infants <i>under 1 year</i> per 1,000 births, from <i>Diarrhœa and all other Digestive Diseases</i> † ...	45·7	12·8	26·9	21·8	22·4	35·2	12·7	24·8	13·5	16·7	25·1	7·8	16·6	25·3	20·1	14·3	14·8	11·9	14·7	14·9	16·0
Death-rate of Infants <i>under 1 year</i> per 1,000 births, from <i>Infantile Atrophy, Debility and Marasmus</i>	15·8	19·8	30·8	29·2	24·4	31·4	11·1	10·6	14·6	13·5	22·7	21·4	25·6	23·0	25·0	22·4	17·7	13·0	18·0	16·9	13·0
Death-rate of Infants <i>under 1 year</i> per 1,000 births, from <i>Measles</i> ...	...	...	...	...	...	5·35	2·60	0·60	3·64	2·26	4·95	3·61	2·28	4·65	6·90	2·50	2·46	0·77	3·89	0·99	2·88
Death-rate of Infants <i>under 1 year</i> per 1,000 births, from <i>Whooping Cough</i> ...	...	...	...	...	...	3·42	7·30	5·73	4·30	5·05	7·35	2·78	5·50	5·20	5·17	4·10	3·70	6·65	0·60	3·1	3·7
Death-rate of Infants <i>under 1 year</i> per 1,000 births, from <i>Respiratory Diseases</i> ...	...	...	...	...	...	20·8	24·6	27·0	24·4	25·2	26·4	20·4	22·2	30·6	24·9	28·0	27·0	20·9	27·6	26·9	18·7
Death-rate of Infants <i>under 1 year</i> per 1,000 births, from <i>Tuberculosis</i> (all forms)	...	...	...	...	...	3·53	3·71	4·65	4·55	4·25	2·40	3·20	3·88	3·88	3·40	2·60	1·54	2·63	1·80	1·36	1·51

For particulars of deaths, as to causes, etc., see Tables on pages 47A and 52A.

DEATHS OF CHILDREN UNDER SCHOOL AGE.

The mortality rate among children, aged 1 to 5 years, in 1921, per 1,000 births in the years 1917 to 1920 (inclusive) was 15·0. The corresponding figure for each of the previous four years was as follows:—1920, 12·4; 1919, 20·2; 1918, 16·3; 1917, 16·0.

Prior to 1911 figures uncorrected for cases belonging to other districts.

* “*All Congenital Causes*” includes Syphilis and congenital defects.

† “*Diarrhœa and all other Digestive Diseases*” includes Diarrhœa, Dysentery, Epidemic or Zymotic Enteritis, Rickets, Diseases of the Stomach, Enteritis, Obstruction of Intestine, Peritonitis, and other Diseases of the Digestive System.

DEATH RATE PER 1,000 POPULATION FROM “THE PUERPERAL STATE.”

	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Population	216,150	216,275	217,010	217,862	255,160	257,113	259,082	261,065	263,064	265,077	267,261	269,193	271,295	271,523	278,107	278,107	278,107	278,107	275,009	286,061	278,400
Deaths ...	31	39	20	30	23	19	16	27	27	24	29	29	23	22	28	37	18	21	29	27	24
Rate ...	0·14	0·18	0·09	0·14	0·09	0·07	0·06	0·13	0·12	0·09	0·19	0·17	0·13	0·08	0·10	0·13	0·06	0·08	0·10	0·09	0·09

Report of the Maternity and Child Welfare Medical Officer.

TO THE MEDICAL OFFICER OF HEALTH.

SIR,

I submit herewith my second report of the work done by the Maternity and Child Welfare Section of your department during the year 1921.

MIDWIVES ACT, 1902.

31 midwives notified the Local Supervising Authority of their intention to practise, and of these 22 hold the Certificate of the Central Midwives Board or of a recognised hospital, and 9 were on the register before the passing of the Midwives Act. During the year, 2 midwives holding the C.M.B. Certificate removed to other towns, and 1 went into hospital to take her general nursing training. There is only 1 midwife subsidised by the Corporation and she is in her third year, the last in which she receives subsidy. There appears to be an adequate supply of midwives in the City, and three of those who have recently started practice are soldiers' widows, who have been trained by the Ministry of Health.

Inspections.—152 visits were paid by the Superintendent of Midwives (Miss G. B. Cameron) to certified midwives at their homes for the purpose of inspecting their midwifery bags and appliances, and to see that the necessary records of their work were being satisfactorily kept; also to investigate cases of ophthalmia neonatorum, of septicæmia, or of any other abnormality occurring in their practices. The results of these visits were generally satisfactory; the midwives are very careful, and are always ready to report any abnormality coming to their notice, and to seek advice in any difficulty. 2 midwives underwent disinfection after being in contact with patients suffering from puerperal septicæmia. In addition 203 visits were paid to midwives' cases, usually at

the request of the midwives, on account of some abnormal condition. 13 handywomen were interviewed, and two of them were seen and cautioned by the Medical Officer.

Births attended by Midwives.—2,159 live births and 55 still-births were attended by midwives during the year, these figures shewing a decrease of 462 in the former, and 14 in the latter number. Midwives attended 28 per cent of the total births in the City, as compared with 31 per cent. in 1920. This decrease is probably accounted for by the fact, that owing to unemployment and lack of money, the services of the Maternity Hospital Nurses, whose fees are not so high, were more sought after.

Lectures to Midwives.—A fortnightly meeting of Midwives was held in the Health Department at which they had opportunities of discussing their difficulties, and of hearing what is expected and required of them in the carrying out of their duties. In addition, lectures by the Maternity and Child Welfare Medical Officers and other Doctors were given to them. There is a good feeling and close co-operation between the practising midwives and the Health Department.

Notices to the Local Supervising Authority from Midwives who have sent for medical help. The following are the details :—

FOR MOTHER				<i>During Puerperium—</i>			
<i>During Pregnancy—</i>				Rise of Temperature	...	5	
Varicose Veins	...	...	2	Mastitis	...	1	
Ante-partum Hæmorrhage			3	Illness of Mother, Colds, etc.,		11	
Abortions	...	...	2				17
			7				
<i>During Labour—</i>				Total calls for Mother	...	102	
Uterine Inertia	...	...	26	FOR CHILD			
Malpresentations	...	...	8	Prematurity and Debility		40	
Contracted Pelvis	...	...	3	Discharging Eyes	...	9	
Retained Placenta	...	...	10	Cyanosis	...	3	
Placenta Prævia	...	...	3	Congenital Defects	...	5	
Complicated Breech	...	...	6	Icterus Neonatorum...	...	2	
Post Partum Hæmorrhage			4				59
Ruptured Perineum...	...	...	18				
			78	GRAND TOTAL	...	161	

This is a decrease of 64 on the number for 1920. The percentage of midwives' cases where a doctor was called in was 7·4 per cent.

Claims were received for *Payment of Doctors' Fees* in the following cases :—

			£	s.	d.
For forceps delivery ...	... 35 cases	@	2	2	0
„ post partum hæmorrhage	3	„ @	1	1	0
„ other illnesses of mother	5	„ @	0	15	0
Do. do.	3	„ @	1	0	0
„ illnesses of child	2	„ @	0	5	0
„ premature birth	5	„ @	0	13	0
Total cases 53.	Total payments		£87	3	0.

11 claims for *Payment of Midwives' Fees* were received and paid, and these amounted to £8 12s. 0d. All cases were investigated by this Department.

Ophthalmia Neonatorum.—The total number of cases notified was 95; of these 87 or 91 per cent. were visited, the remainder being cases in Hospital or admitted to Hospital from other districts and notified. This is a decrease of 21 on last year's numbers.

Doctors attended at birth in 34 cases.

Midwives „ „ 9 „

Wingrove Hospital attended 6 „

Maternity Hospital attended 46 „

—
Total in the City ... 95

To the 87 visited cases, 406 visits were paid, and the ultimate results were :—

Recovered 75, slightly defective in one eye 6, died 3, and left the district 3.

35 of these cases were notified by Doctors only.

2	„	„	„	Doctors and Midwives.
46	„	„	„	Maternity Hospital.
6	„	„	„	Midwives.
6	„	„	„	Wingrove Hospital.

The Ophthalmia incidence per 1,000 births for the last 7 years has been as follows:—

1915	...	...	4·1
1916	...	...	9·9
1917	...	...	7·9
1918	...	...	2·9
1919	...	...	15·0
1920	..	...	14·4
1921	...	...	13·0

There are two explanations of the large increase in incidence from 1919 onwards, first, that a prosecution of a medical practitioner for non-notification in that year resulted in a keener all-round watchfulness by doctors generally, and second a greater prevalence of Venereal Disease. It is difficult to say which is the more likely explanation. The latter, however, would appear to be the more probable, since the vast majority of babies are under more or less close observation by Health Visitors throughout, and unnotified cases are pretty certain to come to their knowledge.

Puerperal Septicæmia.—12 cases of puerperal septicæmia were notified. Doctors attended 7 of the cases, midwives 2 cases, and the Maternity Hospital 3 cases. 10 cases were visited; of these 6 recovered and 4 died. The two cases not visited occurred in the Maternity Hospital, the patients belonging to outside districts.

Deaths during the Puerperal Period.—During the year 20 deaths (equivalent to 2·8 deaths per 1,000 births). occurred in the City during the puerperal period and the following table gives the causes and a comparison with the previous year.

	1921.	1920.
Accidents of Pregnancy	—	4
Puerperal Hæmorrhage	6	2
Other accidents of Childbirth	3	9
Puerperal Fever	5	5
Puerperal albuminuria and convulsions	5	7
Puerperal Insanity	1	—
Total	20	27

It is gratifying to note that in 1921, there was a slight decrease in the mortality occurring during this particular period of childbirth when compared with previous years, but it is still considered that some avoidable deaths take place, and efforts are being made to further reduce the number.

For some years past the maternal death rates for the whole country have been in the neighbourhood of 3·5 per 1,000 for married mothers and nearly double that number per 1,000 for unmarried mothers and in all cases the three main causes are

- (a) Toxæmia.
- (b) Accidents of Childbirth.
- (c) Puerperal Sepsis.

In the three years from 1916 to 1919, 1,052 mothers and approximately 600 children lost their lives in the British Isles alone from eclampsia. Group (b) above is responsible for even more deaths, and constitutes the greatest single group of causes of ante-natal and natal deaths, probably over 25 per cent. of those occurring.

It is almost certain that many valuable lives would be saved every year if women as soon as they became pregnant would place themselves under regular and efficient medical care. During the course of the year therefore the midwives practising in the city were personally addressed and urged to make full use of our ante-natal clinics.

NOTIFICATION OF BIRTHS ACTS.—4,819 births were notified in 1921 as against 7,720 births registered, or 62·41 per cent., this being 3 per cent. less than in 1920.

The following table shows from whom they were received :—

Notified by						Living Births.	Still-Births.
Medical Practitioners	...	...	...	...	...	923	15
Certificated Midwives	...	...	...	...	...	2,159	55
Maternity Hospital	...	...	...	...	...	1,605	59
Wingrove Hospital	...	...	...	...	...	65	9
Gables Maternity Home	...	...	...	...	...	59	...
Parents	...	...	...	...	...	8	...
						4,819	138

Still-Births.—Of the total notifications of births received under the Act, still-births were in the following proportion:— 1909, 4·1%; 1910, 3·9%; 1911, 4·1%; 1912, 3·2%; 1913, 3·4%; 1914, 3·6%; 1915, 3·4%; 1916, 3·6%; 1917, 3·1%; 1918, 3·3%; 1919, 3·5%; 1920, 3%; and 1921, 2·86%.

The total number of still-births reported from the Superintendents of the Cemeteries was 190.

The total number notified was 138, or 72 per cent. of the total number.

The following details apply to the 122 still-births that were visited :—

Duration of Pregnancy.—Under 7 months, 4 or 3·2%; at 7 months, 19 or 15·5%; at 8 months, 22 or 18%; and at full time, 77 or 63·3%.

Presentation.—Vertex, 55 or 45%; breech, 8 or 6·5%; footling, 7 or 5·4%; unknown, 52 or 42·6%.

Supposed Cause of Still-Births.—Ill-health of mother, 24 or 19·6% of cases; accident previous to birth in 28 cases, or 22·9%; malpresentations, etc., in 18 cases, or 14·7%; and other causes in 52 cases, or 42·8%

In 30 instances it was the 1st child; in 18 the 2nd; in 11 the 3rd; in 9 the 4th; in 8 the 5th; in 46 the 6th or more.

This was the first still-born child in 94 cases; the 2nd in 14; the 3rd in 7; the 4th in 3; and the 5th or more in 4 cases.

Among the principal causes of still-births the following are important :—

- (a) Syphilis, which is responsible for about one-fifth of the total still-birth mortality.
- (b) Drink.
- (c) Prematurity.
- (d) Malnutrition.
- (e) Foetal Deformities.
- (f) Criminal Abortions.

As regards the first cause (syphilis) an enlightened public opinion and a vigorous crusade by all concerned should in the course of time lessen the mortality and other dire results of this disease.

The Maternity and Child Welfare Centres in the City provide invaluable opportunities for the early recognition and treatment of affected women and children. Pregnant women attending ante-natal centres and found to be suffering from syphilis, if put under treatment at once, should bear—in a great many instances—living in place of still-born children, and the living child of a recognised syphilitic mother would automatically receive a blood-test examination, and, if necessary, anti-syphilitic treatment as soon after birth as possible.

Syphilis was returned as a cause of death in 11 children below the age of 1 in the City during the year, and the following table gives the ages at death and a comparison with the previous year. Many syphilitic children were brought to the Centres during the year, and were recommended for immediate

treatment. In this way several women who had no obvious symptoms were found to be affected, and were also placed under treatment.

DEATHS UNDER ONE YEAR OF AGE FROM SYPHILIS.

	1921	1920
Under one week	3	1
One week and under two weeks	1	1
Two weeks and under three weeks	1	—
Three weeks and under four weeks	—	1
One month und under three months	1	8
Three months and under six months	2	—
Six months and under nine months	2	1
Nine months and under twelve months	1	—
TOTAL	11	12

The other above-mentioned causes of still-births do not call for special comment here further than to repeat the advisability generally of ante-natal examination and care referred to on a previous page.

Health Visitors.—For the first three months of the year there were the Chief and 19 other Health Visitors but with the view of lessening expenses, the service of 8 were dispensed with in April. This decrease in the number of workers has necessitated the limiting to some extent of the work done. It was not possible to continue the visiting of children aged one to five years in a systematic manner, because the Health Visitors' time was fully occupied in visiting children up to one year, expectant mothers, cases reported by the Royal Victoria Infirmary, notified cases of measles and pneumonia, and attending on specified days at the Welfare Centres.

Each Health Visitor attends a Centre $1\frac{1}{2}$ days weekly, where she weighs the children, carries out the doctor's instructions, and gives health talks on simple and helpful subjects to the mothers. The visits to the homes are always appreciated and by tactful methods the Health Visitors endeavour to win the confidence of the mothers.

During the early months of 1921, Dene, Jesmond and Arthur's Hill Wards, and the upper parts of Heaton Ward were visited, but when the staff of Health Visitors was reduced these Wards were necessarily taken out of the visiting list. The Centres chiefly affected by this reduction were probably St. Peters, Byker, Shieldfield, and Spital Tongues. During the year 1921, 6,235 births were visited, and a total number of 17,941 revisits were paid to these children; unfortunately these figures only represent an average of 2·87 visits to each child, or less than half the number which is thought necessary. During 1920, when the staff was large, it was possible to pay an average number of 7 visits per child.

In addition to the total number of 24,176 visits paid to children under one year, 5,200 visits were paid to children over one year and under five years; 670 visits were made to expectant mothers; 540 to cases notified by the Royal Victoria Infirmary, and 1,313 special visits; in all a total of 31,899 visits. The Health Visitors also made 3,422 primary and 3,511 subsequent visits to measles, 471 primary and 511 subsequent visits to pneumonia, and 53 primary and 63 subsequent visits to diarrhoea, making a total of 8,031 visits to infectious cases, and a grand total of 39,930 visits.

The addresses of 125 children who left the City were sent on to the Medical Officers of Health for the districts they had gone to reside in.

Summary of Visits paid to Infants:—

6,886 infants born in 1920 were due to attain their first year of age in 1921. Of these:

5,877 completed this first year.

596 died.

256 left the City.

121 disappeared and could not be traced.

36 were visited only once.

6,886

The following figures are therefore based on the 5,877 who completed the first year, plus the 596 who died, making in all a total of 6,473.

Influence of Housing Conditions.—1,263 births occurred in one-roomed dwellings and of these 140 died, a mortality rate of 110·84 per 1000 ; 2,523 births occurred in two-roomed dwellings and of these 234 died, a mortality rate of 92·74 per 1000 ; 1,651 births occurred in three-roomed dwellings and of these 134 died, a mortality rate of 81·16 per 1000 ; and 1,036 births occurred in four-roomed dwellings and of these 88 died, a mortality rate of 84·94 per 1000.

During the 14 years 1908-1921, 44,598 births have been under the observation of the Health Visitors, and of these 5,476 died, a mortality rate of 122·8 per 1,000 births.

The following is the analysis :—

YEAR.	LIVING IN							
	1 Room.		2 Rooms.		3 Rooms.		4 Rooms.	
	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.	Births.	Deaths.
1908	247	32	515	57	312	32	13	2
1909	339	53	694	86	168	32	29	3
1910	536	62	723	68	51	4	7	2
1911	462	68	794	79	77	6	20	1
1912	465	48	746	60	110	6	25	1
1913	241	40	348	28	91	3	17	3
1914	245	36	375	31	90	11	25	3
1915	631	104	2,140	306	1,416	144	692	74
1916	611	121	2,333	343	1,584	180	756	85
1917	730	104	2,199	284	1,349	150	776	84
1918	607	90	2,018	270	1,285	144	766	83
1919	664	111	2,056	306	1,358	188	810	102
1920	843	167	2,155	291	1,529	171	1,052	121
1921	1,263	140	2,523	234	1,651	134	1,036	88
Totals ...	7,884	1,176	19,619	2,443	11,071	1,205	6,024	652
Death rate per 1000 births.	149·16		124·6		108·8		108·2	

Cleanliness of the 6,473 homes visited :—

Good in 5,516 cases or 85·41%.

Fairly good in 843 cases or 13·02%.

Bad in 114 cases or 1·76%.

Employment of Mothers.—

Before confinement only 212 or 3·2% of the mothers worked,
as compared with 3·6% in 1919.

After confinement 141 or 2·1% of the mothers were working,
as compared with 2·9% in 1920.

26 or 4·3% of the mothers who lost their babies during the first few weeks
of their lives, worked previous to their confinement.

*Health of the Mothers whose children survived their first
year.—*

It was good in	5,282 cases, or in 88·8%.
It was fairly good in	490 „ „ 8·3%.
It was bad in	105 „ „ 1·7%, and 7 Mothers died.

*Health of Mothers whose children died during their first
year.—*

It was good in	447 cases, or in 75%.
It was fairly good in	98 „ „ 16·2%.
It was bad in	51 „ „ 8·5%.

Deaths of Babies.—596 children died during the first year
of their life, and of these 267, or 46%, died within the first
month. The cause of death in 238 of the latter cases, or 89%,
was given as “prematurity,” or “debility from birth.”

Of the total deaths under one year of age :—

133 or 22%	were due to bronchitis or pneumonia.
52 „ 9%	„ „ „ convulsions.
83 „ 14%	„ „ „ enteritis.

*Previous Deaths in families where a baby died during
1920.* In 77% of the cases, this was the first death; in 10%
it was the second; in 6% it was the third; in the remaining
7% more than three children had previously died.

Attendant at time of birth of the 596 children who died.—
Doctors, 46%; midwives, 23%; Maternity Hospital, 31%.

Feeding of the 6,473 children under observation :—

	Breast.	Mixed.	Only Artificial
Children who <i>survived</i> first year; feeding during first month	89%	6%	5%
Children who <i>died</i> during first year; feeding during first month	82%	6%	12%
Children who <i>survived</i> first year; feeding at nine months	38%	28%	34%
Children who <i>died</i> during first year; feeding at time of death	68%	9·0%	23%
Feeding of 83 children who died from enteritis	36%	13%	51%

Illegitimacy.—There were 303 illegitimate children born in 1921, and of these 50 died, a death rate of 165 per 1,000, as compared with 96 for all births.

Deaths among notified and unnotified births. 62% of infant deaths were notified births.

Sex.—There were 3,776 male children born, and of these 401 died. There were 3,508 female children born, and of these 298 died, a death rate among male children of 106 per 1,000, and a death rate among female children of 84·9 per 1,000.

WELFARE CENTRES.

As regards the number of Centres and the situation of the premises these remain as they were, and, chiefly for economic reasons, no additions have been made during the year.

Premises.—The premises in which the nine Centres are located are situated in Dalton Street, Byker; Clara Street, Benwell; Barrack Road; Dunn's Cottages, Spital Tongues; Wharncliffe Street, Scotswood Road; City Road Girls' Club; Wesley Street, Shieldfield; Portland Street, Mill Lane; Bottlehouse Street, St. Peters; and a Medical Clinic is held at every Centre one day a week.

Ante-natal Sessions.—Special sessions are held weekly for ante-natal and post-natal mothers at two Centres, viz., Byker and Wharncliffe Street.

The number of women attending these clinics has been gradually increasing. and is added to by cases sent by the Medical Officers at the other Welcomes, by the Health

Visitors, the Midwives, the Royal Infirmary Almoner the Citizen's Service League, and the Pre-Maternity Department of the Maternity Hospital, etc.

The effort of the Medical Officer is to make the clinics a centre of education rather than of treatment. The expectant mother will attend for obvious illness in herself, as well as the mother suffering from some post-natal condition, but there is still a great deal of teaching required before the claim of the unborn child is realised.

Therefore, the objects of the clinics are mainly two-fold. In the first place, the expectant mother learns something of how to look after herself during her pregnancy, and secondly, she is taught the necessity of making efficient arrangements for the safe care of herself and her child at the time of her confinement.

For this reason at each Centre the names of the doctors practising in the district are known; a list of the midwives in the town is kept, and also of the various institutions associated with work of this kind, and the hours of attendance at them.

Only minor ailments are treated at the Centres. Where cases require medical care they are always referred to their own medical attendant or to Hospitals. A very real advantage has been gained by having Corporations beds at the Maternity Hospital, as these can be occupied by pre-maternity cases as well as by women at the time of delivery.

During the stay of these patients in hospital, the system of obtaining Home Helps through the Citizen's Service Society has been valuable, as also where an ailing, expectant, or nursing mother, not being a hospital case, has had rest and treatment at home through the assistance of one of these helps.

The original Voluntary Committee of the Infant Welfare Society still co-operates by paying for cases requiring treatment at Convalescent Homes. The "Rose Joicey" Home at Whitburn, and Miss Taylor's Home, "Ellwood," at Barrasford, have also helped in this way.

ANTE-NATAL AND POST-NATAL ATTENDANCES. JANUARY TO DECEMBER, 1921.

MONTH.	BARRACK ROAD.		BYKER.		WHARNCLIFFE ST.	
	Ante-Natal.	Post-Natal.	Ante-Natal.	Post-Natal.	Ante-Natal.	Post-Natal.
January	14	10	21	7	12	11
February	15	4	18	13	17	10
March	4	4	10	16	23	11
April	—	—	5	15	21	11
May	—	—	11	19	13	12
June	—	—	23	17	19	9
July	—	—	7	7	10	—
August	—	—	33	16	17	5
September	—	—	18	21	17	14
October	—	—	13	13	23	8
November	—	—	18	15	29	9
December	—	—	7	1	28	7
Total	33	18	184	160	229	107

Total Ante-Natal Attendances ...	446
Total Post-Natal ..	285
	<u>731</u>
Total number of individuals attending	364
Total number of Sessions for Ante-Natal and Post-Natal Cases ...	104
Average Attendance	7

Sessions for Children.—As a result of the large reduction in the sum available for part time Medical Services—nearly 50 per cent.—in the Annual Estimates at the beginning of the year, and an extensive cutting down in the staff of Health Visitors, it was unfortunately necessary to abolish one weekly Medical Session at each of three Centres and an Ante-Natal Session at one Centre. This, of course, affects the attendances because it is found by experience that practically twice as many women and children attend the Medical Sessions as do the Non-Medical Sessions. The pre-existing 20 weekly Medical Sessions therefore were reduced to 16, and throughout the year there was an average attendance of 45·7 at each of the 533 held.

The Medical Sessions are conducted as hitherto by one whole time and two part time Medical Officers, assisted by the Health Visitors and a Clerk.

On Centre day the Sessions commence at ten o'clock in the morning, and are carried on, with an interval for dinner, till the last mother is seen in the late afternoon. On admission every child is stripped and its clothes are put into a special individual receptacle—usually a wire basket—where they remain till required for re-dressing. The child is then weighed and its weight is recorded on the child's chart, which is filed at the Centre, and on the weight card which is given to the mother to keep, and which she presents to the Health Visitor at each attendance. From the latter card parents are able to see and take an interest in the progress of their children.

Weekly Weighing.—This is an essential part of Infant Welfare, and 32,538 weighings were done at the nine Centres during the year. It is important, because any deviation from the normal health of a young child can be reflected by its weight, and cessation of gain, or actual loss, of weight may be the first and only sign that the child is, or has been ill; and illness of a very trifling and transitory nature is apparently sufficient to stop, temporarily, the growth of a child.

Especially is this the case with those conditions which derange the intestinal tract and set up diarrhœa, hence the paramount importance of correct and careful feeding and the advisability of a weekly weighing of all infants and young children.

After the child is weighed it is wrapped loosely in a blanket and sent into the consulting room to be examined by the doctor. Here, particulars of the child's condition are recorded on the chart, and the mother is advised, where necessary, as to the feeding and rearing of her child. Should the latter be found to be suffering from any illness, or shew any deviation from the normal, the mother is told so and is given a written recommendation on the printed form to either, and preferably, her own doctor, or to one of the hospitals, for treatment.

SUMMARY OF WORK AT THE MATERNITY AND CHILD WELFARE CENTRES,
JANUARY TO DECEMBER, 1921.

CENTRE.	Ante-natal.		Post-natal.		New Babies.			Individuals.			Attendances.			No of Attendances at		No of Sessions.		Average Attendance at		Deaths.
	Attend-ances.	Individ-uals.	Attend-ances.	Individ-uals.	Under 12 m'ths	Over 12 m'ths	Total.	Under 12 m'ths	Over 12 m'ths	Total.	Under 12 m'ths	Over 12 m'ths	Total.	Med. Session	Non-Med. Session	Med.	Non-Med.	Med. Session	Non-Med. Session	
Barrack Rd. ...	33	17	18	9	347	72	419	464	138	602	2933	894	3827	3145	682	72	22	43.68	31	14
Benwell ...	...	...	...	...	407	85	492	514	155	669	3152	1173	4325	2355	1970	48	42	49.06	46.9	10
Byker ...	184	97	160	85	459	85	544	542	140	682	3022	915	3937	2567	1370	47	43	54.61	31.86	13
City Road ...	...	...	...	...	261	66	327	363	167	530	2661	1312	3973	2785	1188	58	38	48.01	31.26	23
Portland St. ...	...	...	...	...	253	96	349	311	172	483	2204	1210	3414	2426	988	51	44	47.56	22.45	18
Shieldfield ...	...	...	...	...	248	42	290	327	97	424	2470	979	3449	2734	715	64	31	42.71	23.06	8
Spital Tongues	...	...	...	...	81	17	98	127	60	187	815	543	1358	1358	...	47	...	28.89	...	5
St. Peter's ...	...	...	...	...	315	100	415	396	215	611	2830	1444	4274	3690	584	73	23	50.54	25.39	17
Wharnccliffe St.	229	104	107	52	283	76	359	392	154	546	2950	1031	3981	3303	678	73	23	45.24	29.47	16
Totals ...	446	218	285	146	2654	639	3293	3436	1298	4734	23037	9501	32538	24363	8175	533	266	45.7	30.7	124

Instruction.—Health Talks are given by the Health Visitors at each Centre once a week. They are upon some subject of interest to the mothers respecting the health of their children, and are listened to attentively and appreciatively. They are brief and couched in simple language, and are a valuable adjunct to the general educative nature of the scheme.

Arrangements were made whereby one of our Health Visitors attends once a month at St. Mark's Church and Institute for the Deaf, and delivers to the deaf mothers through an interpreter one of these Health Talks.

In this way it is hoped to get at those children who are prevented by the disabilities of their mothers from attending the Centres, and there is every reason for supposing that benefit has been derived from what has been done.

Sewing days are held either once or twice a week at each centre, and paid teachers are present to instruct the mothers in the making of suitable garments for themselves and their children. Upwards of 6,000 attendances were made by mothers at these classes during the year.

Feeding.—Experience has proved that skilled advice is required by the majority of the mothers attending our Welfare Centres, and it is usually necessary on the subject of feeding.

Correct dieting may be said to constitute another essential part of the work, and it leads to the conclusion that were it possible to get every infant fed from the outset of its life as it should be fed, many of the devastating ills that infant flesh is now heir to would completely disappear and the effects of others would be greatly minimised.

Artificial Feeding is still a much too common and often unnecessary procedure, and every effort is made at the Centres to persuade mothers to feed their infants in the natural and best way. But it is not easy to convince a mother that she is able to successfully nurse her baby when she, owing to the hard times in which we are living, is not getting the amount of nourishment for her own needs that she normally takes. Under these circumstances the weekly weighing of all children which is done at the Centres is invaluable, and provides a conclusive argument for or against. A child in normal health

who is receiving sufficient and suitable nourishment gains weight every week, whereas a healthy child who is not receiving its proper kind and quantity of food loses. Additional nourishment in the form of a free or cost price order for dried milk was given at the Centres to those nursing mothers who were considered to be in need of them.

Details of the dried milk distribution are given later.

Illegitimate Children to the number of 153 were brought to the Centres during the year. This is an increase of 71 or nearly 100 per cent. on the previous year. These babies were considered as precious as other babies and received the same consideration. The mothers were encouraged to feed their children naturally, and were given all available help for doing so. It is hoped that this attitude will eventually lessen the high mortality existing among these children.

Toddlers.—Efforts are being made to get mothers to pay more attention to the health of their children of toddling age, among whom a good deal of deterioration has been noticed; this is probably due to the fact that many mothers will bring their children regularly to the Centres so long as they are infants and wholly dependant on them, but as soon as the children reach the age of from 12 to 18 months and begin to toddle about, the care and attention previously bestowed upon them is somewhat relaxed, and the children are allowed to some extent “to look after themselves.”

They are often no longer brought to the Centres, or only at long intervals, and are allowed much more freedom in their diet, frequently getting fed “on what we get ourselves,” quite irrespective of the fact that at this age children still require a diet peculiar to themselves.

As a result of the increased interest taken in these children at the Centres the attendances have increased by more than 50 per cent. during the year.

Attendances.—From January to December, 4,734 children were brought to the nine Centres, and they made a total of 32,538 attendances. 3,293 new children attended the Centres for the first time during the year, and the following table shews the above figures in comparison with those of the previous year.

While these figures may be considered satisfactory for the facilities now at hand, it should nevertheless be noted that the number of children brought to the Centres forms only a small proportion of those who ought to be brought but who are not. The more Centres that exist and the larger the number of Sessions at each Centre, the larger will be the attendance, and the greater will be the proportion of the City's children under regular observation and advice at the City's Welfare Centres. And that attendance at the Centres is of the greatest importance is amply proved by the common experience of those engaged in Infant Welfare Work, which is that regular gain in a child's weight and progress in its general condition are the results of regular attendance at the Centres, whereas irregular and infrequent attendants often display irregular or unsatisfactory progress. And it is remarkable that should a child who has been brought regularly to the Centres be kept away for any length of time it is nearly always found on re-examination to have deteriorated both in weight and general condition.

The contention is further justified by the fact that whereas the mortality during the year among the whole of the City's child population under the age of 5 years was 5·8 per cent., that among the 4,734 children all under the age of 5 years who attended the Centres was only 2·6 per cent.—less than half. And as this first five-year period is the one during which more deaths occur than during any similar period throughout life, a reduced mortality then is especially gratifying. Roughly the above figures would appear to indicate that a child attending the Centres regularly has twice as good a chance of escaping death during an especially dangerous period as a child who does not attend the Centres, and this fact alone should suffice to attract to the Centres all mothers with young children.

But additional facilities mean additional expenditure, and for this reason they will not be available until some future period. It is to be hoped, however, that the development of Child Welfare Work will not be held up for any longer period

than the present necessity for economy demands, because in the end there is nothing cheaper from a national point of view than a healthy man or a healthy woman, but neither can be built up on a rickety or dyspeptic baby any more than a good house can be erected on a bad foundation.

Lectures.—Papers on the scientific and the popular aspects of Maternity and Child Welfare were read at different meetings during the year and appropriate articles appeared in the local press.

New Centres.—It was proposed to open New Centres in the Scotswood and Walker areas of the City, where they are badly needed, and suitable premises were sought for and found in both districts. The necessity for economy, however, unfortunately compelled postponement of any further extension of the scheme, and the opening of these new Centres is in abeyance for the present. There is a large child population in both these districts, and at present there is no Centre accommodation nearer than Clara Street, Benwell, and St. Peters in Glasshouse Street, respectively. In both cases the distances are too great for mothers to bring their children.

Rickets.—Among the thousands of children who are attending our Welfare Centres a certain proportion—as might be expected—are found to be suffering from Rickets.

As soon as the disease is recognised or suspected, the little victim is recommended for remedial treatment and the mother is advised as to the appropriate diet and hygiene of her child. In this way many children will be prevented from growing up to be misshapen men and women. Sufficient time has not yet elapsed to allow of an authoritative opinion as to whether the disease is or is not under control, but there is no doubt that public opinion is much better informed on the point than it was, and that much greater interest in and apprehension of the horrors of the disease is being displayed by mothers of young children. This being so it is reasonable to look forward to the day when this avoidable disease will be a comparative rarity.

Home Helps.—There is still no provision for the employment of Municipal Home Helps. In 1920 a Scheme was drawn up and submitted to the Committee but—for economic reasons—it was not proceeded with.

DRIED MILK.—During the year, 22,133 lbs. of dried milk were given gratis to 1,446 women and children, and 45,395 lbs. were distributed at cost price to 1,831 individuals. In the former case (free) there was an increase of 1,494 lbs., and in the latter (cost price) a decrease of 41,131 lbs., as compared with the previous year, and both these facts are explained by the unfavourable industrial conditions prevailing in the City. In all cases the financial position of the applicant was enquired into before the privilege was granted, and each was required to conform to a scale which was practically as follows :—

For free milk a weekly income of approximately not more than 5/- per head after paying rent.

And for cost-price milk a weekly income of not more than 10/- or 15/- per head according to the size of the family.

As far as possible each case was considered on its merits, the above scale being used as a guide. In the cases where free milk was given the majority belonged to the very poor, and were either the families of unemployed or destitute men, or unskilled labourers working part time. Others were illegitimate children where the granting of free milk not only assisted in the nourishment of the child but also freed the mother and enabled her to seek for work. Poor widows with young children formed another group. Milk was only given at the discretion of the Medical Officers, and it was given to mothers to assist in the nourishment either of themselves or their children.

The women who got it for their own use were either nursing or expectant mothers, and the welfare of the actual or prospective infant was the aim in view.

For children it was given to replace breast feeding at weaning time or to supplement other nourishment.

The quantity given has been 6-lbs., which is a month's supply and which yields, when suitably diluted, a little more than a pint of milk a day. This is a convenient quantity and is the amount sanctioned by the Ministry of Health to Local Authorities receiving its grant.

When confined strictly to suitable cases and given in quantities and dilutions applicable to the age and physical conditions of the child for whom it is intended, nothing but good resulted from the distribution of this dried milk, and it was especially useful during the critical diarrhoea months of the summer. But as indicated above its use is sometimes attended by abuse, scores of mothers having welcomed it and regarded it as a substitute for and an improvement on their own milk, which in most cases it is not and was never meant to be.

The following table shews the quantity of dried milk distributed each month during the year:—

MONTH.				FREE.	COST PRICE.
January	...	...	...	1,064 lbs.	6,246 lbs.
February	...	...	...	1,117 „	5,379 „
March	...	...	...	1,380 „	3,796 „
April	...	...	...	1,487 „	3,637 „
May	...	...	...	1,688 „	3,172 „
June	...	...	...	3,875 „	2,148 „
July	...	...	...	2,919 „	2,218 „
August	...	...	...	2,133 „	2,696 „
September	...	...	...	2,129 „	4,038 „
October	...	...	...	1,398 „	3,351 „
November	...	...	...	1,457 „	4,088 „
December	...	...	...	1,486 „	4,626 „
Total				22,133 lbs.	45,395 lbs.

Total number of individuals supplied free ... 1,446

Total number of individuals supplied at cost price 1,831

Several changes were made during the year in the method by which the milk was distributed. Originally given out from the Health Department, it was first transferred to depots opened specially for the purpose by the proprietors of one brand, and to certain chemists appointed by the proprietors of another brand, and finally the latter method was adopted by both manufacturers, and so far has been found to be satisfactory to all parties concerned. Printed orders signed by the Medical Officer are given to the successful applicants at the various Centres and are then taken by the mothers to the particular chemist in her district, who supplies her with the quantity ordered either gratis or at cost price as the case may be.

Owing to the large numbers applying for free milk a special sub-committee was formed by the Maternity and Child Welfare Committee to interview the applicants and investigate their qualification, and the sub-committee sat by rota once a week for a considerable period. As an additional check certain members of the Maternity and Child Welfare Committee were then appointed to interview and investigate the conditions of all the individuals receiving free milk at that period. After examining hundreds of cases the Committee expressed themselves as perfectly satisfied that there was practically no abuse prevailing and agreed to leave the matter to the discretion of the Medical Officers. While this course is not an agreeable one for the doctors and takes up a certain amount of their time which could be more profitably employed, it is a convenience to the women to have their claims decided at once at the Centres by those best qualified in one way (medical) to deal with them, and the system on the whole is probably the one with least objections. It is always open to the Committee to deal with the matter themselves if in their opinion the expenditure appears excessive or exceeds the amount allotted in the annual estimates for this particular purpose.

MATERNITY ACCOMMODATION.

Maternity accommodation in the City is still very inadequate and in no way equal to the pressing needs of the community.

The proposals made in 1920 to extend the present Maternity Hospital premises in New Bridge Street were not proceeded with after they had been fully discussed, because larger and more suitable premises had been discovered in those occupied, but soon to be vacated, by the Industrial Schools in Jubilee Road. At the present time negotiations between the Hospital Authorities, the City Council, and other interested parties are taking place and it is hoped that the matter will be satisfactorily dealt with at an early date. In the meantime, the City Council continues to make its annual grant of £1,000 to the Maternity Hospital funds, in return for which ten beds are placed constantly at its disposal and are kept continuously occupied by its nominees throughout the year.

I am, Sir,

Your obedient servant,

A. F. G. SPINKS, M.D.

Health Department,

Town Hall,

Newcastle-upon-Tyne,

31st August, 1922.

INCLUDING
REPORTS OF THE
RESIDENT MEDICAL OFFICER OF THE
INFECTIOUS DISEASES HOSPITAL,
AND THE BACTERIOLOGIST.

III. INFECTIOUS DISEASE.

FEVERS, FOOD POISONING,
CITY HOSPITAL FOR INFECTIOUS DISEASES,
DISINFECTION, BACTERIOLOGY.

INFECTIOUS DISEASES.

NUMBER OF CASES PER 1,000 POPULATION IN 1921.

DISTRICT.	ATTACK-RATE PER 1,000 POPULATION.						
	Small-pox.	Typhus.	Scarlet Fever.	Diphtheria.	Enteric Fever and Continued Fever.	Puerperal Fever.	Erysipelas.
England and Wales †
105 Great Towns (including † London). †
NEWCASTLE-UPON-TYNE	5·1	1·23	0·02	0·04	0·57
Hull	1·07	2·23	0·06	0·08	0·25
Leeds	3·28	1·43	0·05	0·07	0·39
Bradford	3·40	1·29	0·07	0·14	0·52
Sheffield	2·03	1·37	0·09	0·13	0·48
Manchester	7·26	1·35	0·10	0·19	0·52
Salford	7·3	1·3	0·18	0·07	0·60
Liverpool	3·7	1·4	0·03	0·07	0·60
Nottingham ...	0·4	...	1·17	1·09	0·09	0·03	0·35
Leicester	3·0	1·3	0·11	0·08	0·35
Stoke-on-Trent	2·64	1·27	0·10	0·13	0·48
Birmingham	3·62	1·80	0·03	0·11	0·31
Cardiff	3·37	1·56	0·07	0·04	0·33
Bristol ...	0·017	...	4·13	3·73	0·09	0·08	0·50
Portsmouth	8·07	2·39	0·14	0·03	0·32
† London	7·27	3·62	0·07	3·55*	0·47
Gateshead	4·6	0·68	0·00	0·03	0·41
South Shields	5·09	0·41	0·04	0·02	0·30
Tynemouth	4·67	0·76	0·21	0·06	0·53
Sunderland	1·87	0·04	0·03	0·04	0·47
Middlesbrough ...	0·29	...	1·02	1·00	0·02	0·05	0·27
† Northumberland	3·6	1·08	0·15	0·03	0·56
† Durham	·001	3·28	1·18	0·09	0·04	0·41

† Administrative County.

* Per 1000 births.

‡ Figures not available.

DEATHS (CORRECTED) FROM NOTIFIABLE INFECTIOUS DISEASES
AND NON-NOTIFIABLE ZYMOTIC DISEASES, EXCLUSIVE OF TUBERCULOSIS.

WARD.	Diph- theria.	Ery- sipelas.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Cere- bro- Spinal Fever.	Polio- myelitis	Measles	Puer- peral Fever.	Small- pox.	Whoop- ing Cough.	Zymotic Diarrhoea (under 2 years of age).
St. Nicholas'	2
*St. Thomas'	1	...	...	3	...	...	2	3
St. John's	1	...	...	...	...	11	...	...	5	8
Stephenson	...	2	...	...	...	...	...	7	...	...	8	12
Armstrong	1	...	1	...	...	11	1	...	4	7
Elswick	2	...	...	...	...	1	...	...	4	8
Westgate	1	1	...	5	2
†Arthur's Hill
Benwell	1	4	...	1	...	...	7	1	...	2	16
Fenham	1	...	...	...	2	...	4	...	...	4	2
All Saints'	...	2	2	...	...	...	...	7	1	...	3	16
St. Andrew's	6	...	...	5	6
Jesmond...	1
Dene	1	...	...	...	...	...	1	1
Heaton	1	...	1	...	...	3	...	...	1	2
Byker	10	1	...	2	7
St. Lawrence	1	...	7	...	...	9	11
St. Anthony's	...	1	...	...	...	...	...	9	...	...	1	9
†Walker	1	...	...	...	...	10	...	...	2	7
City	22	7	12	...	5	3	...	97	5	...	58	120

Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children. † Includes Union Workhouse and Wingrove Hospital.

‡ Includes City Hospital for Infectious Diseases.

For particulars of deaths from **Tuberculosis** see pages 47A and 116-124.

NOTIFIED CASES OF INFECTIOUS DISEASE.

EXCLUSIVE OF TUBERCULOSIS.

AGES OF CASES OF INFECTIOUS DISEASE NOTIFIED DURING THE YEAR 1921.
(TABLE II. OF MINISTRY OF HEALTH.)

NOTIFIABLE DISEASE.	AT AGES—YEARS.									TOTAL (ALL AGES).	
	Under 1.	1 to 5.	5 to 15.	15 to 25.	25 to 45.	45 to 65.	65 and up- wards	Ages not known			
									1921.	1920.	
Diphtheria (including Membranous Croup)...	9	98	173	50	18	5	...	...	353	348
Erysipelas	5	4	6	17	58	56	11	3	160	246	
Scarlet Fever	4	299	891	180	38	1	...	...	1413	1282
Typhus Fever ... ..	...	...	...	...	...	...	...	...	...	...
Enteric Fever ... ..	...	...	1	1	4	...	1	...	7	10
Epidemic Cerebro- Spinal Meningitis }	...	...	2	...	...	...	...	...	2	5
Acute Poliomyelitis ...	1	2	...	...	...	...	...	...	3	2
Acute Polio-Encephalitis	...	...	...	1	...	...	...	...	1	...
Encephalitis Lethargica	...	...	4	7	3	4	...	...	18	8
Measles and Rubella ...	349	2201	1166	18	7	1	...	20	3762	2727	
Puerperal Septicæmia ...	...	...	...	7	5	...	...	...	12	12
Ophthalmia Neonatorum	95	...	...	...	...	...	...	...	95	116
Pneumonia	45	173	95	70	107	63	28	5	586	875	
Malaria ... ..	...	...	...	...	1	...	...	...	1	32
Dysentery ... ..	...	...	...	...	1	1	...	...	2	9
Trench Fever ... ..	...	...	...	...	...	...	...	...	...	1
Relapsing Fever ... ..	...	...	...	...	...	...	...	...	...	1
TOTALS	508	2777	2338	351	242	131	40	28	6,415	5,674	

WARD DISTRIBUTION OF INFECTIOUS DISEASES.

(TABLE II. OF MINISTRY OF HEALTH.)

WARD.	Diphtheria.	Erysipelas.	Enteric Fever.	Scarlet Fever.	Cerebro-Spinal Fever.	Poliomyelitis.	Acute Polio-Encephalitis.	Encephalitis Lethargica.	Measles.	Rubella.	Puerperal Fever.	Ophthalmia Neonatorum.	Acute Primary Pneumonia.	Acute Influenzal Pneumonia.	Malaria.	Dysentery.	Trench Fever.	Relapsing Fever	TOTAL.
St. Nicholas'...	2	...	...	13	...	...	...	...	32	...	...	5	3	...	...	...	...	...	55
St. Thomas' ...	20	9	...	87	...	1	1	...	192	3	...	3	26	...	...	1	...	...	343
St. John's ...	14	6	...	59	...	...	...	1	221	...	...	5	42	4	...	...	...	...	352
Stephenson ...	30	12	...	108	...	1	...	...	305	2	...	7	29	4	...	...	...	...	498
Armstrong ...	48	10	1	85	...	...	...	1	338	2	2	4	19	3	...	...	...	...	513
Elswick ...	29	4	...	60	...	...	...	1	147	4	...	2	14	2	...	...	...	...	263
Westgate ...	15	8	...	88	...	...	...	...	191	2	1	3	31	2	...	...	...	...	341
Arthur's Hill...	10	16	...	56	...	...	...	1	71	3	4	6	45	2	...	...	...	...	214
Benwell ...	26	16	1	80	...	...	...	2	303	4	1	8	69	5	...	...	...	...	515
Fenham ...	14	4	1	61	1	1	...	...	238	1	...	7	8	2	...	...	...	...	338
All Saints' ...	9	12	...	46	...	...	...	1	139	2	1	11	35	6	...	...	...	...	262
St. Andrew's...	9	6	...	50	...	...	...	...	136	...	1	7	36	2	...	...	...	...	247
Jesmond ...	14	2	...	67	...	...	...	2	77	3	...	...	7	...	...	...	...	...	172
Dene ...	11	8	1	71	...	...	...	2	118	1	...	2	12	1	...	...	...	...	227
Heaton ..	16	6	1	92	...	...	...	...	109	1	...	6	13	4	...	...	...	...	248
Byker ...	24	13	...	73	1	...	...	...	225	...	...	8	16	1	...	...	...	...	361
St. Lawrence	36	6	1	127	...	...	...	2	184	1	1	7	23	1	...	1	...	...	390
St. Anthony's	8	13	1	57	...	...	...	...	243	...	1	2	37	2	...	...	...	...	364
Walker ...	18	9	...	133	...	...	...	5	462	2	...	2	73	7	1	...	...	...	712
City ...	353	160	7	1413	2	3	1	18	3731	31	12	95	538	48	1	2	...	...	6415

For particulars of cases of **Tuberculosis**, see special section, pages 111–135.

WARD INCIDENCE OF INFECTIOUS DISEASES.
EXCLUSIVE OF TUBERCULOSIS.

NOTIFIABLE DISEASES—Cases per 1,000 Population.																		DEATHS per 1,000 Pop.		
WARD.	Diphtheria.	Erysipelas.	Scarlet Fever.	Typhus Fever.	Enteric Fever.	Cerebro-Spinal Fever.	Poliomyelitis.	Acute Polio- encephalitis.	Encephalitis Lethargica.	Measles (including Rubella).	Puerperal Fever.	Smallpox.	Ophthalmia Neonatorum.	Pneumonia.	Malaria.	Dysentery.	Measles (including Rubella).	Whooping Cough	Zymotic Diarrhoea (under 2 years of age).	
St. Nicholas'	0.54	...	3.55		...	...	...	0.06	...	8.7	...		1.37	0.82	...	...	...	...	0.55
*St. Thomas' ...	1.34	0.62	6.01		...	...	0.06	...	...	13.4	...		0.21	1.79	...	...	0.21	0.14	0.21
St. John's ...	0.88	0.38	3.75		...	...	...	0.06	...	14.0	...		0.32	2.92	...	...	0.71	0.32	0.51
Stephenson ...	1.56	0.62	5.62		...	...	0.05	...	...	15.9	...		0.36	1.72	...	...	0.36	0.42	0.62
Armstrong ...	2.99	0.62	5.30		0.06	...	...	0.06	0.06	21.2	0.12		0.25	1.37	...	...	0.69	0.25	0.44
Elswick ...	2.24	0.31	4.63		...	...	...	0.08	0.08	11.6	...		0.15	1.23	...	...	0.07	0.31	0.62
Westgate ...	0.96	0.51	5.62		...	...	...	...	...	12.3	0.06		0.19	2.10	...	...	0.06	0.32	0.13
†Arthur's Hill	0.85	1.36	4.78		...	...	...	0.09	0.09	6.3	0.34		0.51	4.01	...	...	...	...	...
Benwell ...	1.44	0.88	4.44		0.05	...	...	0.11	0.11	17.2	...		0.44	4.10	...	...	0.39	0.11	0.89
Fenham ...	1.24	0.35	5.39		0.09	0.09	0.09			21.1	...		0.62	0.88	...	...	0.35	0.35	0.18
All Saints' ...	0.50	0.66	2.53		...	...	...	0.05	0.05	7.8	0.05		0.61	2.26	...	...	0.39	0.16	0.88
St. Andrew's	0.70	0.47	3.95		...	...	...			10.6	0.08		0.55	2.97	...	...	0.47	0.39	0.47
Jesmond ...	1.24	0.18	5.88		...	...	...	0.17	0.17	7.0	...		...	0.62	...	...	...	...	0.09
Dene ...	0.88	0.64	5.68		0.08	...	...	0.16	0.16	9.5	...		0.16	1.04	...	...	...	0.08	0.08
Heaton ...	1.01	0.38	5.79		0.06	...	...			6.3	...		0.38	1.07	...	...	0.19	0.06	0.12
Byker ...	1.34	0.72	4.08		...	0.06	...			12.6	...		0.45	0.95	...	...	0.56	0.11	0.39
St. Lawrence	1.96	0.33	6.91		0.05	...	...	0.11	0.11	10.1	0.05		0.38	1.31	...	0.06	0.38	0.49	0.60
St. Anthony's	0.49	0.81	3.52		0.06	...	...			15.0	0.06		0.12	2.41	...	...	0.55	0.06	0.56
†Walker ...	0.73	0.54	8.07		...	...	...			28.1	...		0.12	4.85	0.06	...	0.60	0.12	0.42
City ...	1.27	0.57	5.07	...	0.02	0.007	0.01	0.003	0.33	13.5	0.04	...	0.34	2.10	0.003	0.007	0.35	0.21	0.43	

*Includes Royal Victoria Infirmary and Fleming Memorial Hospital for Sick Children. †Includes Union Workhouse and Wingrove Hospital.
‡Includes City Hospital for Infectious Diseases, Walker Gate.

HOUSEHOLDS AFFECTED WITH INFECTIOUS DISEASES, EXCLUSIVE OF TUBERCULOSIS AND MEASLES.

DISEASES.	HOUSEHOLDS WITH						Mili- tary or Naval Cases	Public Insti- tutions *	TOTAL CASES.
	Single Cases	2 Cases each	3 Cases each	4 Cases each	5 Cases each	6 Cases & over			
Diphtheria (including Membranous Croup)	229	39	3	3	1	...	11	9	353
Erysipelas ...	142	1	...	...	...	...	...	16	160
Scarlet Fever ...	1005	122	32	4	2	1	4	31	1413
Enteric (or Typhoid) Fever ...	7	...	...	...	...	...	...	...	7
Epidemic Cerebro- Spinal Meningitis...	2	...	...	...	...	...	...	...	2
Poliomyelitis ...	2	...	...	...	...	...	...	1	3
Encephalitis Lethar- gica ...	18	...	...	...	...	...	...	...	18
Puerperal Fever ...	9	...	...	...	...	...	...	3	12
Ophthalmia Neona- torum ...	95	...	...	...	...	...	...	...	95
Pneumonia ...	522	9	2	...	...	...	8	32	586
Malaria ...	1	...	...	...	...	...	...	...	1
Dysentery ...	1	...	...	...	...	...	...	1	2
Polio Encephalitis ...	...	...	...	...	...	...	1	...	1
TOTAL ...	2033	171	37	7	3	1	24	93	2653

* See below.

Schools and Infectious Disease.—It was not found necessary to close any school during the year.

PUBLIC INSTITUTIONS AND INFECTIOUS DISEASE.

The following notifications were received during the year:—

INSTITUTIONS, &c.	Diphtheria.	Erysipelas.	Scarlet Fever.	Poliomyelitis.	Measles and Rubella.	Puerperal Fever.	Pneumonia.	Dysentery.	TOTAL.*
Royal Victoria Infirmary ...	1	2	3	...	...	...	...	...	6
Fleming Memorial Hospital, North Road ...	1	...	6	1	14	...	1	...	23
Throat and Ear Hospital ...	...	3	1	...	...	...	...	...	4
Workhouse ...	...	10	...	...	...	1	31	...	42
St. Vincent's Home...	...	...	3	...	...	...	...	...	3
City Hospital for Infectious Diseases—(Staff) ...	3	1	13	...	2	...	...	...	19
Deaf and Dumb Institution	1	...	...	...	...	...	...	...	1
Northern Counties' Orphan- age ...	...	...	1	...	...	...	...	...	1
Industrial School ...	...	...	2	...	...	...	...	...	2
Maternity Hospital ...	1	...	...	...	...	2	...	...	3
War Pensions Hospital ...	2	...	..	...	...	...	...	1	3
TOTAL ...	9	16	29	1	16	3	32	1	107

* Does not include any cases belonging to the City which could properly be assigned to their homes elsewhere.

MILK SUPPLY IN RELATION TO INFECTIOUS DISEASES.

The source of the milk supply was ascertained in every case of fever and diphtheria. In no case was there reason to suspect that the milk was responsible for the conveyance of infection.

There were in the City before the War 714 small general shops retailing milk, few of them being fit places for the purpose. This number now stands at 311.

39 cases of Scarlet Fever and 13 cases of Diphtheria occurred at public places of various kinds, as shewn in the following tables:—

SCARLET FEVER.					
Green Grocer	...	2	Boot Repairer	...	1
General Dealer	...	5	Drapery	...	1
Insurance Office	...	2	Public House	...	4
Social Club...	...	1	Dentist	...	1
Boarding House	...	5	Nursing Home	...	3
Newsagent	...	4	Music Teacher	...	1
			Second-hand Clothes Dealer	...	1
			Dairies	...	2
			Doctors	...	3
			Bakery	...	1
			Butcher	...	2

DIPHTHERIA.					
Boarding House	...	2	Public House	...	1
Boot Repairer	...	2	Dairy	...	1
Green Grocer	...	1	Photographer	...	1
			Newsagent	...	1
			General Dealer	...	3
			Fried Fish Business	...	1

SCARLET FEVER.

Notifications of 1,413 cases were received during the year, and there were 12 deaths, which is equivalent to a mortality of 0·8 per cent. The type of disease was mild on the whole.

DIPHTHERIA.

353 cases were notified during the year, and 22 died, a case mortality of 6·2 per cent.

Antitoxin was distributed free to medical practitioners in the City as follows:—

Number of medical practitioners who made application for Antitoxin...	...	43
Number of phials of Antitoxin supplied	...	238
Number of cases of Diphtheria notified	...	342
Number of cases of Diphtheria removed to Hospital	...	241
Number of Hospital cases in which Antitoxin was injected prior to admission	...	59

The fatality of the disease in recent years is shown in the subjoined table.

Year.	DIPHTHERIA CASES. (All Forms.)	
	Number.	Case Mortality (per cent).
1909	546	12·7
*1910	443	9·0
1911	507	7·5
1912	501	6·6
1913	368	7·6
1914	362	7·7
1915	275	9·5
1916	272	10·3
1917	226	14·6
1918	250	9·2
1919	320	6·9
1920	348	6·9
1921	353	6·2

* Antitoxin first distributed gratis April, 1910.

Particulars of the type of the disease as noted in cases sent to hospital will be found later in the section dealing with the City Hospitals.

MEASLES AND RUBELLA.

3,762 cases (including 31 of Rubella) were notified, and there were 97 deaths (corrected) in 1921, representing a death rate of 0·35 per 1,000 population, as compared with 0·15 in 1920.

DEATHS, 1921 (CORRECTED).

MONTH.	YEARS OF AGE.							TOTAL.
	0-1.	1-2.	2-3.	3-4.	4-5.	5-10.	Over 10.	
January ...	3	9	1	...	...	...	...	13
February ...	...	5	...	2	...	...	...	7
March ...	10	7	1	2	...	2	...	22
April ...	4	12	6	1	...	...	1	24
May ...	4	10	...	...	2	1	...	17
June ...	...	6	2	1	...	...	...	9
July ...	...	...	...	...	3	1	...	4
August ...	...	...	...	...	...	1	...	...
September ...	...	...	...	...	...	...	...	...
October ...	...	...	...	...	...	...	...	...
November ...	...	...	...	...	...	...	...	...
December ...	...	...	...	...	...	...	...	...
Total ...	21	49	10	6	5	5	1	97

The following table shows the deaths in the various wards, and at different age periods:—

		Under 3 months.	3 and under 6 months.	6 and under 9 months.	9 and under 12 months.	1 and under 2 years.	2 and under 3 years.	3 and under 4 years.	4 and under 5 years.	5 and under 10 years.	Over 10 years.	TOTALS.
St. Nicholas'	...	...	...	...	...	...	...	...	...	...	...	...
St. Thomas'	...	...	...	...	...	1	1	...	...	1	...	3
St. John's	...	...	...	1	1	4	2	1	1	1	...	11
Stephenson	...	...	...	1	...	5	...	1	...	...	...	7
Armstrong	...	1	...	3	...	3	3	1	...	...	...	11
Elswick	...	...	...	...	...	1	...	...	...	...	...	1
Westgate	...	...	...	...	...	1	...	...	...	...	...	1
Arthur's Hill	...	...	...	...	...	...	...	...	...	...	...	...
Benwell	...	...	...	1	...	6	...	...	...	...	...	7
Fenham	...	...	...	...	1	1	2	...	...	...	...	4
All Saints'	...	...	...	1	...	4	1	1	...	...	...	7
St. Andrew's	...	...	...	1	...	4	...	...	1	...	...	6
Jesmond	...	...	...	...	...	...	...	...	...	...	...	...
Dene	...	...	...	...	...	...	...	...	...	...	...	...
Heaton	...	...	...	...	...	1	...	...	...	1	1	3
Byker	...	...	...	3	...	5	2	...	...	...	...	10
St. Lawrence	...	...	...	2	...	4	1	...	...	...	...	7
St Anthony's	...	...	...	1	1	3	2	...	...	2	...	9
Walker	...	...	2	1	...	6	1	...	...	...	...	10
Total	...	1	2	15	3	49	15	4	2	5	1	97

Each Health Visitor visited and revisited the cases occurring in her district. By this arrangement each case is seen immediately on receipt of the notification, and advice is given regarding the nursing and isolation of the patient. The cases are kept under supervision until they recover, and should subsequent cases occur in the family they are recorded.

Measles Cases, including Rubella, notified during 1921—

Cases notified by Medical practitioners	...	...	2,882
„ found „ Health Visitors	...	...	842
„ notified „ Parents	...	...	38
			<hr/> 3,762

For the Ward incidence of the disease and the ages of cases notified, see pages 83 and 84.

Of the total number of measles cases notified, 3,422 (or 91 per cent.) were visited by the Health Visitors, and 3,511 revisits were paid.

2,618 households were affected, and the families lived in the following dwellings :—

1 room	...	...	...	317
2 rooms	...	...	...	1,001
3 „	...	...	...	806
4 „	...	...	...	365
5 „	...	...	...	55
6 „	...	...	...	74
				<hr/>
				2,618

Isolation.—The isolation of the 3,422 visited cases was found to be good in 27 per cent. ; fair in 49 per cent. ; bad in 24 per cent.

Medical Attendance.—In 90 per cent. of the cases visited a doctor was in attendance.

Condition of Patient.—In 83 per cent. of the cases visited the disease ran a normal course, bronchitis, pneumonia or other complications developed in the remainder, and 3·3 per cent. of the total cases died.

Attendance at Schools.—794 or 23 per cent. of the children affected had previously attended school, and in 31 per cent. of the cases no one from the affected households had been attending any school.

The following were the ages of the children (visited) suffering from measles :—

Under 1 year	...	...	337
„ 2 years	...	...	671
„ 3 years	...	...	521
„ 4 years	...	...	472
„ 5 years	...	...	417
„ 6 years	...	...	575
Over 6 years	...	...	429
			<hr/>
			3,422

WHOOPIING COUGH.

58 deaths occurred from Whooping Cough. The particulars are as follows :—

MONTH.	YEARS OF AGE.						TOTAL.
	0—1	1—2	2—3	3—4	4—5	5—10	
January	4	...	1	...	...	...	5
February	1	2	1	...	...	1	5
March	2	3	...	1	...	1	7
April	2	7	1	...	...	1	11
May ... ..	...	...	1	...	...	...	1
June	4	2	1	...	...	...	7
July	1	...	1	...	...	...	2
August	2	...	1	...	...	...	3
September	3	1	...	1	...	...	5
October ... ..	...	2	...	...	...	...	2
November	1	...	...	...	...	...	1
December	7	1	...	1	...	...	9
Total	27	18	7	3	...	3	58

The death rate in 1921 was equivalent to 0·21 per 1,000 population, as compared with 0·16 in 1920.

ENTERIC FEVER.

7 cases were notified during the year, 5 of which died, giving a death rate of 0·02 per 1,000 population, and a case mortality of 71·4 per cent.

One patient had been staying at a house in another district where there was a case of Enteric Fever, suspected to be due to milk supplied by a farmer who had been washing his milk cans in water drawn from a pond.

DIARRHŒA.

There were in all 159 deaths from the disease, equal to a death rate of 0·57 per 1,000 population, and this number included 120 deaths of children under two years of age.

FOOD POISONING.

Two small outbreaks of suspected food poisoning came under notice in August and October respectively. The first occurred amongst the members of a single household, the suspected medium being tinned salmon. Full inquiry and

investigation (bacteriological and serological), was made for paratyphosus, enteritidis, aertrycke, and Morgan bacilli, but without definite result. There was no portion of the original tin available. The illness lasted for five days as an acute gastro-enteritis. There were no deaths.

The second outbreak involved four members of a household who alone had consumed portions of a tin of roast meat. The usual inquiry and examinations were made, with the addition of a chemical analysis of the tin for alkaloids, which were found in small quantity. Examination for organisms of the food poisoning group was negative, but there was gross infection with anærobic putrefactive organisms and various cocci, although these may have gained admission subsequent to the opening of the tin. There were no deaths.

TYPHUS.

No case of this disease occurred during the year.

SMALLPOX.

There were no cases of smallpox in Newcastle.

The following are the particulars, courteously furnished by the Clerk to the Guardians, of infant **Vaccination** in Newcastle during recent years. (Walker, which belongs to the Tynemouth Rural area for registration purposes, is not included).

Year.	Births Registered.	Successful Vaccinations.	Unsuccessful Vaccinations.	Exemption Certificates	
				Number.	Percentage to Total Births.
1905	7,958	7,264	27	65	0·8
1906	7,721	6,733	28	92	1·2
1907	7,610	6,702	16	94	1·2
*1908	7,747	6,414	20	449	5·8
1909	7,180	5,667	30	517	7·2
1910	7,023	5,532	22	683	9·7
1911	6,604	5,002	24	767	11·6
1912	6,715	4,625	18	982	14·6
1913	6,874	4,441	7	1,173	17·0
1914	7,023	4,230	11	1,499	21·2
1915	7,116	4,487	1	1,485	20·9
1916	7,117	4,405	9	1,509	21·2
1917	6,166	3,688	5	1,478	24·0
1918	6,092	3,488	15	1,362	22·4
1919	6,131	3,405	8	1,582	25·8
1920	7,955	4,403	45	2,074	26·7
1921	7,258	4,159	11	2,128	29·3

* Vaccination Act, 1907, came into force.

The *Public Vaccinators* and *Vaccination Officers* for the various districts of the City are :—

Dene, Heaton and Byker Municipal Wards :—

DR. F. R. H. LAVERICK, Woodbine Villa, Heaton Road.

Deputy—Dr. J. BOWER, 35, Heaton Road.

St. Anthony's and St. Lawrence Municipal Wards :—

Dr. RICHARD DAGGER, 1, Rothbury Terrace.

Deputy—Dr. ERIC C. DAGGER, 1, Rothbury Terrace.

Walker District :—

Dr. T. J. RYAN, Welbeck Road.

Deputy—Dr. WM. HUTCHINSON, Welbeck Road.

All Saints', St. Nicholas', St. Andrew's, Jesmond, and St. Thomas' Municipal Wards :—

Dr. FRANK HAWTHORN, 10, Ellison Place.

Deputy—Dr. O. W. OGDEN, 4, St. Mary's Terrace.

Fenham, Arthur's Hill, Westgate and St. John's Municipal Wards :—

Dr. A. M. PATERSON, 1, Grove Street.

Stephenson, Elswick, Armstrong and Benwell Municipal Wards :—

Dr. G. D. NEWTON, 8, Regent Terrace.

Deputy—Dr. J. A. BRAND, 186, Westmorland Road.

Wingrove Hospital :—

Dr. G. P. HARLAN.

Vaccination Officers :—

Western—W. J. WHITE, 16, Wingrove Avenue

Eastern—WM. GARRETT, 34, Harbottle Street.

ERYSIPELAS.

160 cases of this disease were notified and there were 7 deaths.

PUERPERAL SEPTICÆMIA.

12 cases were notified. Inquiries were made concerning 10 of these. 7 of the cases were attended by doctors.

INFLUENZA AND PNEUMONIA.

These diseases accounted for 476 deaths as against 558 last year.

Total deaths at age periods.

Under 5 years.	5-15	15-25	25-45	45-65	65 and over.	TOTAL.
210	22	34	62	80	68	476

As will be seen from the above figures, 210 or 44·1 per cent. of the deaths occurred below the age of 5 years.

PNEUMONIA.

586 cases of pneumonia, including influenzal-pneumonia, were notified. For the ages and ward distribution, see pages 83 and 84.

Of that number 471 or 80·37 per cent. of the cases were visited by the department.

It was found that of these 471 visited cases, 372 or 78·98 per cent. were primary pneumonia, 52 or 11·04 per cent. were cases of influenzal-pneumonia, and 47 or 9·97 per cent. were cases of pneumonia following other diseases.

Sex—59 per cent. of the cases were males.

Ages—The ages of the 471 cases visited were as follows :—

Under 1 year...	...	...	39
1-5 years	...	...	162
5-15 years	...	...	83
15-25 years	...	...	48
25-45 years	...	...	75
45-65 years	...	...	46
and over 65 years	...	...	18
			<hr/> 471

Of these, 88 were school children.

Housing—56 cases occurred in 1 roomed dwellings, 161 cases occurred in 2 roomed dwellings, 138 cases occurred in 3 roomed dwellings, and 116 cases occurred in more than 3 roomed dwellings.

Type of House—221 cases occurred in flats, 171 cases in tenements, and 79 in self-contained houses.

Isolation—The isolation was good in 53 per cent. of the cases, fair in 7·5 per cent. of the cases, and bad in 39·5 per cent. of the cases.

Ventilation was good in 91 per cent. of the cases.

Previous History—

There was a previous history of Measles	in 183 cases.
“ “ “ Whooping Cough	in 104 cases.
“ “ “ Influenza	in 73 cases.
“ “ “ frequent winter Coughs and Colds	in 436 cases.
There had been previous attacks of Pneumonia	in 60 cases.
“ “ “ Bronchitis	in 8 cases.
“ “ “ Tuberculosis	in 14 cases.

Deaths—109 or 23 per cent. of the visited cases of pneumonia died.

VENEREAL DISEASES.

Syphilis was certified as the cause of death in 18 cases.

The work of the treatment clinic has been continued successfully. 2,723 old and new cases attended 29,813 times as out-patients. 23 cases accounted for 606 in-patient days. Of the new cases 534 were syphilis, 489 gonorrhœa, 40 soft chancre, and 106 conditions other than venereal. 70 per cent. were males.

3,231 doses of salvarsan substitutes were administered to out-patients, and 18 to in-patients.

2,216 Wasserman reactions were carried out at the College of Medicine, and 35 microscopical examinations of pathological material were made at the College and 762 at the treatment clinic. The irrigation stations for males and for females in connection with the clinic have been in full use during the year under report.

Newcastle Residents Notified as Attending other Centres:

Cases—Syphilis 8; Gonorrhœa 4; conditions other than venereal 1.

Attendances—29.

Doses of salvarsan substitute given, 12.

Information as to ophthalmia neonatorum will be found on page 55.

ACUTE POLIOMYELITIS AND EPIDEMIC CEREBRO-SPINAL MENINGITIS.

NUMBER OF CASES.

NUMBER OF CASES.																														
TOTAL NO. OF CASES.	0-1 Year.						1-5 Years.						5-10 Years.						10-15 Years.						15 Years and Over.					
	Male.			Female.			Male.			Female.			Male.			Female.			Male.			Female.			Male.			Female.		
	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.	Cases.	Deaths.	Permanent Paralysis.			
3	1	...	...	...	2	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
			
2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
18	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
CASES REMOVED TO ISOLATION HOSPITAL.	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
			
	7	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

CITY HOSPITAL FOR INFECTIOUS DISEASES.**Accommodation.**

NAMES AND SITUATION OF HOSPITALS.	TOTAL AVAILABLE BEDS.
City Hospital for Infectious Diseases, Walker Gate (including Phthisis Pavilions, 62 Beds) ...	294
Smallpox and Isolation Hospitals, Town Moor ...	172

YEAR.	Population of the City.	Number of Beds at City Hospital for Fever Cases.	Total Admissions (exclusive of Phthisis).	Percentage of Notified Cases Admitted.
1890	182,866	104	219	21·3
1900	213,039	104	290	38·6
1909	263,064	172	1,090	78·0
1910	265,077	172	912	83·0
1911	267,261	172	1,110	83·1
1912	269,193	172	1,542	86·4
1913	271,295	172	1,286	88·3
1914	271,523	172	1,835	78·9
1915	278,107	232	1,886	90·5
1916	278,107	232	1,380	87·0
1917	278,107	232	1,303	87·5
1918	278,107	232	1,245	87·5
1919	275,099	232	1,370	84·3
1920	286,061	232	1,710	86·4
1921	278,400	232	1,683	81·9

CITY HOSPITAL FOR INFECTIOUS DISEASES.

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Diseases Admitted—1921.

		CASES ADMITTED PROVED AFTER OBSERVATION TO BE :																								
CASES SENT IN AS :		Number.	Scarlet Fever.	Diphtheria.	Diphtheria Carriers.	Enteric Fever.	Measles.	Pneumonia.	Rubella.	Respiratory Diseases.	Epidemic Cerebro-Spinal Meningitis.	Other Forms of Meningitis.	Encephalitis Lethargica.	Influenza.	Gastro-intestinal Diseases.	No Appreciable Disease.	Unclassified.	Tonsillitis.	Skin Disease.	Pertussis.	Septicæmia.	Erysipelas.	Miliary Tuberculosis.	Mumps.	Congenital Paralysis.	Varicella.
Scarlet Fever	...	1160	1104	1	...	...	1	2	...	1	...	...	...	...	2	22	9	14	2	2	...	...	...	...	...	...
Diphtheria	...	283	9	240	...	...	5	1	...	...	...	...	...	...	...	...	1	25	...	...	1	1	...	...	...	...
Diphtheria Carriers	...	24	...	...	24	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever	...	13	...	...	...	9	...	1	...	1	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...
Measles	...	48	2	...	...	...	44	...	...	...	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...
Pneumonia	...	39	...	...	...	...	...	36	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epidemic Cerebro-Spinal Meningitis	...	3	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other forms of Meningitis	...	3	...	...	...	...	...	...	...	...	...	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Encephalitis Lethargica	...	7	...	...	...	...	...	...	...	...	...	1	5	...	...	...	...	...	...	...	...	1	...	...	...	...
Rubella	...	3	...	...	...	...	...	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Poliomyelitis	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...
Gastro-intestinal Diseases	...	5	...	...	...	...	...	...	...	...	...	...	...	...	5	...	...	...	...	...	...	...	...	...	...	...
Respiratory Disease	...	2	...	...	...	...	...	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Unclassified	...	34	...	...	...	...	...	...	...	...	...	1	...	...	...	...	21	...	12	...	...	...	...	...	...	...
Erysipelas	...	29	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	4	...	...	25	...	...	...	...
Mumps	...	3	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	3	...	...	...
Tonsillitis	...	9	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	9	...	...	...	...	...	...	...	...
Pertussis	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Influenza	...	14	...	...	...	...	...	...	...	...	...	1	...	13	...	...	...	...	...	...	...	...	...	...	...	...
Varicella	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	1
TOTALS	...	1683	1115	241	24	950	40	3	7	2	6	6	13	9	23	32	48	19	3	1	26	1	3	1	1	

CITY HOSPITAL, WALKER GATE.
(Fever Pavilions).

Admissions during the year—1,683.

The *average daily number* of patients in the hospitals was 124, exclusive of 61 cases of phthisis.

RATE PER CENT. OF CASES REMOVED TO HOSPITAL TO CASES NOTIFIED.

	1890	1895	1900	1905	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	1921
Scarlet Fever	18·4	33·0	35·0	50·1	84·5	83·8	88·0	90·6	81·4	91·3	94·5	91·9	99·3	88·0	85·7	82·3
Diphtheria	8·3	28·7	40·0	36·8	80·1	80·5	81·8	81·5	84·8	89·1	84·6	82·0	91·6	74·4	89·1	82·7
Enteric Fever	38·9	48·0	54·5	52·0	90·5	92·0	91·2	91·1	94·1	87·0	96·6	96·0	93·1	80·0	90·0	71·4
All cases of the above together with Continued and Typhus Fever, and Cerebro-Spinal Fever, &c.)	21·3	34·6	38·6	47·8	83·0	83·1	86·4	88·3	82·6	90·5	87·0	87·5	87·5	84·3	86·4	82·4

Diseases and Mortality Rates.

MORTALITY OF CASES TREATED IN HOSPITAL AS COMPARED WITH CASES NOT REMOVED DURING 1921.

DISEASE.	HOSPITAL.			NOT REMOVED.		
	Total Cases (Verified).	Deaths.	Case Mortality per cent.	Total Cases.	Deaths.	Case Mortality per cent.
Scarlet Fever	1115	9	0·80	249	3	1·2
Diphtheria	241	15	6·2	59	7	11·9
Enteric Fever	9	2	22·2	2	2	100·0

Expenses of Maintenance.—Of the patients admitted, the expense of maintenance is charged as under :—

	Cases.
To the Newcastle Sanitary Authority	1,648
To private guarantors	11
To the War Office and Admiralty	17
Tyne Port Sanitary Authority	7
TOTAL	1,683

Admissions and Deaths, 1921.

DISEASES.	ADMISSIONS.												DEATHS.													
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
Scarlet Fever	89	80	63	36	53	66	48	65	106	198	177	134	1115	..	1	1	2	1	1	1	1	1	..	9
Diphtheria	24	18	29	25	14	19	15	18	16	25	16	22	241	1	..	3	1	4	1	1	..	1	1	15
Diphtheria Carriers	4	4	1	2	..	4	2	..	1	4	1	1	24
Enteric Fever	1	..	3	1	..	3	1	9	2	..	1	1	..	1	..	1	2
Measles	3	13	12	3	7	7	3	2	..	..	..	..	50	2	..	..	1	..	1	..	..	..	..	..	6
Rubella	2	..	..	1	..	..	..	..	..	..	..	2	3	..	..	..	..	..	..	..	..	..	..	..	..
Pertussis	..	..	..	1	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..
Varicella	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
Mumps	1	..	..	2	..	..	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..
Erysipelas	3	2	6	2	1	3	3	..	1	2	..	3	26	..	..	..	..	1	1	..	..	..	..	..	1
Epidemic Cerebro-Spinal Meningitis	..	1	1	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..
Other forms of Meningitis	1	1	..	1	1	..	..	..	..	..	..	2	6†	..	1	..	1	..	..	..	..	..	..	..	1
Encephalitis Lethargica	2	..	1	..	1	..	1	..	..	..	1	..	6	..	..	..	..	..	..	..	..	..	..	..	6
Pneumonia	5	6	3	1	3	3	4	2	2	1	4	6	40	..	2	1	1	1	2	1	2	1	3	..	17	
Other Respiratory Diseases	2	..	1	1	..	..	..	..	..	1	1	1	7	..	..	..	..	..	..	..	..	..	..	..	..
Influenza	1	10	2	..	..	..	..	..	..	..	..	..	13	..	..	..	..	..	..	..	..	..	..	..	..
Gastro-Intestinal Disease	2	..	1	2	..	1	..	2	..	..	1	..	9	..	..	..	..	..	..	..	..	..	1	..	1
Skin Disease	1	3	1	3	..	1	..	..	..	5	3	2	19	..	..	..	..	..	..	..	..	..	..	..	..
Tonsillitis	7	4	2	6	5	1	1	..	..	3	12	7	48	..	..	..	..	..	..	..	..	..	..	..	..
No appreciable disease	1	1	3	2	6	1	..	2	5	1	..	1	23	..	..	..	..	..	..	..	..	..	..	..	..
Unclassified	5	3	6	3	6	3	1	3	3	2	..	..	35*	1	..	..	1	..	..	..	..	..	..	..	2
TOTALS	154	146	135	91	97	110	78	94	135	242	219	182	1,683	5	4	8	5	9	6	3	2	3	3	6	6	60

† Includes Tuberculous Meningitis, 3; Septic Meningitis, 2; Cerebral Abscess, 1: all fatal
 * Includes Septicæmia, 1; Miliary Tuberculosis, 1; Congenital Paralysis 1.

Length of stay in Hospital of fatal cases.—Of the foregoing, the following *died within 24 hours of admission*—Measles 1, Diphtheria 1, Pneumonia 3, Scarlet Fever 2, Cerebral Abscess 1, while 2 cases of Diphtheria, 4 of Pneumonia and 1 of Scarlet Fever died within 48 hours of admission to hospital.

Present Death Rates compared with those of previous years.

RETURN SHEWING THE NUMBER OF CASES OF
SCARLET FEVER, DIPHTHERIA, AND ENTERIC FEVER ADMITTED TO HOSPITAL,
AND MORTALITY RATES PER CENT.
1890-1895.

YEAR.	NUMBER OF CASES ADMITTED TO HOSPITAL.			NUMBER OF DEATHS.			CASE MORTALITY, PER CENT.		
	Scarlet Fever.	Diph- theria.	Enteric Fever.	Scarlet Fever.	Diph- theria.	Enteric Fever.	Scarlet Fever.	Diph- theria.	Enteric Fever.
1890	114	15	80	2	1	14	1·8	6·7	17·5
1891	110	10	67	5	6	6	4·5	60·0	8·9
1892	244	18	26	8	5	5	3·3	27·8	19·2
1893	202	15	49	5	2	6	2·5	13·3	12·2
1894	230	8	60	6	3	13	2·6	37·5	21·7
1895	319	41	75	10	10	21	3·1	24·4	28·0
	1,219	107	357	36	27	65	2·9	28·3	17·9
1912-1921.									
1912	1,018	383	82	34	27	13	3·3	7·0	15·8
1913	853	254	109	21	22	12	2·5	8·7	11·0
1914	1,404	251	86	43	21	13	3·1	8·4	15·1
1915	1,305	223	88	37	18	10	2·8	8·0	11·4
1916	677	210	57	19	23	8	2·8	10·9	14·0
1917	409	164	12	13	22	1	3·1	13·5	8·3
1918	381	205	26	9	13	2	2·6	6·3	7·8
1919	630	196	11	21	13	0	3·3	6·6	0·00
1920	1,105	244	11	17	19	1	1·5	7·7	9·0
1921	1,115	241	9	9	15	2	0·8	6·2	22·2
	8,897	2,371	491	223	193	62	2·5	8·1	12·6

Diphtheria.—Of the 241 patients in hospital 186 were faucial or pharyngeal cases, of whom 5 died, a case mortality per cent. of 2·7; 35 were laryngeal or tracheal cases, of whom 5 or 14·7 per cent. died; and 20 had involvement of the nasal passages of whom 5, or 25·0 per cent., died.

Tracheotomy was performed in 15 cases of diphtheria, and in 1 case of measles; of the 16 cases, 5 or 31·2 per cent. died.

The diagnosis of all cases were confirmed bacteriologically, either before or after admission to hospital.

The type of the disease was, on the whole, mild, the case mortality per cent. over the year being 6·2.

Antitoxin is administered to all cases of diphtheria admitted to hospital which have not received the remedy at home.

Bacteriological diagnosis is made in the great majority of cases before admission.

Mixed Infection.—44 patients sent into hospital, or 2·6 per cent., were found on admission to be suffering from two or more distinct infectious diseases, as follows:—

Scarlet Fever with Tuberculosis	...	...	...	1
Scarlet Fever with Measles	...	...	...	2
Scarlet Fever with Pertussis	...	...	...	1
Scarlet Fever with Ringworm	...	...	...	3
Scarlet Fever with Impetigo	...	...	...	3
Scarlet Fever with Diphtheria	...	...	...	7
Scarlet Fever with Varicella	...	...	...	6
Diphtheria with Scarlet Fever	...	...	...	7
Diphtheria with Scabies	...	...	...	1
Diphtheria with Measles	...	...	...	1
Diphtheria with Impetigo	...	...	...	2
Diphtheria with Ringworm	...	...	...	2
Diphtheria with Varicella	...	...	...	1
Measles with Impetigo	...	...	...	2
Measles with Tuberculosis	...	...	...	1
Measles with Scarlet Fever	...	...	...	1
Measles with Varicella	...	...	...	1
Indefinite with Scabies	...	...	...	1
Septicæmia with Diphtheria	...	...	...	1
				<hr/>
				44

Thus, 2·1 per cent. of the cases of scarlet fever were suffering from, or incubating, one or more additional infectious diseases on admission, and 6·0 per cent. of the cases of diphtheria.

Cross Infection.—During the year 5 patients developed a second infection in the wards, or 0·3 per cent. of the total admissions to hospital.

CROSS INFECTIONS.

Admitted as				Developed.				Number of Cases.
Scarlet Fever ...	...	...	...	Pertussis ...	...	...	...	1
Do. ...	...	...	...	Scabies ...	...	...	...	1
Diphtheria ...	...	...	...	Scarlet Fever ...	...	...	...	2
Indefinite ...	...	...	...	Scarlet Fever ...	...	...	...	1
TOTAL				...	...	...	...	5

“Return” Cases.—The following are details of the “return” cases of Scarlet Fever during the year:—

SCARLET FEVER.	“Infecting” Cases.		“Return” Cases.		“Infecting” Cases.
Total Admissions.	No.	Per-centage.	No.	Per-centage.	Average Day of Disease when Discharged.
1,115	24	2·1	30	2·7	37·1

SEASONAL OCCURRENCE.

Quarter.	Total Scarlet Fever Admissions.	“Infecting” Cases.		“Return” Cases.	
		No.	Percentage.	No.	Percentage.
January to March ...	232	3	1·3	3	1·3
April to June ...	155	...	...	...	...
July to September ...	219	6	2·7	6	2·7
October to December ...	509	15	2·9	21	4·1

Of the 24 “infecting” cases: (a) 17 had no complications or discharges whilst in hospital and remained “clean” after reaching home; (b) 2 had no complications whilst in hospital but developed discharges after reaching home; and (c) 5 were “dirty” cases whilst in hospital but were “clean” on discharge. In 3 of this last class, discharges re-commenced after reaching home.

Of the above classes, the average day of disease on discharge from hospital of the supposed infecting cases, and the period elapsing after that discharge and the onset of illness in the "return" case, were as follows :—

Class (a)—31·7 and 12·1 days.

„ (b)—32·5 „ 13·0 „

„ (c)—46·4 „ 11·8 „

“ RETURN ” CASES FOR YEARS 1906-1921.

Year.	Total Scarlet Fever Admitted.	“ Infecting ” Cases.		“ Return ” Cases.	
		No.	Percentage.	No.	Percentage.
1906	442	7	1·6	10	2·3
1907	390	11	2·8	17	4·4
1908	283	4	1·4	5	1·8
1909	623	23	3·7	30	4·8
1910	465	18	3·9	20	4·3
1911	605	26	4·3	30	4·9
1912	1,018	47	4·6	52	5·1
1913	853	23	2·7	24	2·8
1914	1,404	78	5·6	96	6·8
1915	1,305	43	3·3	49	3·7
1916	677	22	3·3	24	3·5
1917	409	9	2·2	13	3·2
1918	381	13	3·4	14	3·6
1919	630	23	3·6	22	3·5
1920	1,105	37	3·3	39	3·5
1921	1,115	24	2·1	30	2·7

Hospital and Home “Isolation” Compared.

In order to determine the relative liability to further infection subsequent to the first, in hospital and home-isolating households respectively, a careful record has been kept for nine years of the number of presumably susceptible persons in each invalided house, all, other than the original patient, below 12 years of age being so classed, and the proportionate incidence of secondary cases calculated.

Cases occurring within seven days of the “isolation” of the original case were not counted, as these probably acquired their infection before the influence of the “isolation” could be felt.

Cases occurring subsequently to the seventh day of “isolation” of the original case, and prior to the release of the latter, were classed as “incidental” infections.

Cases occurring within 28 days after the release of the original case from “isolation” were classed as “return” infections.

The following table shows the results obtained:—

YEAR	...	...	1913.		1914.		1915.		1916.		1917.		1918.		1919.		1920.		1921.		9 Years.	
			Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home	Hospital	Home
Patient "isolated" at			1131	53	1708	244	1462	86	800	8	509	17	450	20	726	47	1203	87	1401	147	9390	709
"Susceptibles" in the homes of each class of patient			69	3	78	28	85	7	33	2	25	...	18	...	59	1	69	5	88	16	524	62
"Incidental" infections																						
Percentage of "incidentals" to "susceptibles"			6.1	5.7	4.6	11.5	5.8	8.1	4.1	25.0	5.0	...	4.0	...	8.1	2.1	5.7	5.7	6.3	10.9	5.6	8.7
"Return" Infections			29	...	84	...	55	2	21	1	20	...	14	...	22	...	49	3	30	7	324	13
Percentage of "returns" to "susceptibles"			2.6	...	4.9	...	3.8	2.3	2.6	12.5	3.9	...	3.1	...	3.0	...	4.1	3.4	2.1	4.8	3.4	1.8
Total of "incidental" and "return" infections			98	3	162	28	140	9	54	3	45	...	32	...	81	1	118	8	118	23	848	75
Percentage of this total to "susceptibles"			8.7	5.7	9.5	11.5	9.6	10.5	6.7	37.5	8.8	...	7.1	...	11.2	2.1	9.8	9.2	8.4	15.6	9.0	10.6

Thus it is seen, on nine years working, that there are fewer secondary cases in the households which sent their first case to hospital. This difference is the more marked when one analyses the relative housing accommodation of the two classes. Thus for every "susceptible" remaining at home among the hospital-isolating class, there were on an average at least 2·1 rooms, whereas in the home-isolating class there was an average of at least 5·5 rooms for each "susceptible," the home class having therefore more than twice the accommodation of the others, and being in fact selected on that account. If, therefore, home isolation were as efficient, case for case, as hospital, one would have expected to find a great preponderance in favour of the home class in the above evidence, instead of which the result is entirely the other way.

OTORRHŒA AND RHINORRHŒA.

In 1920 a report was presented to the Health Department Sub-Committee advocating more extended and specialised treatment for cases of infectious diseases developing ear and nose complications, and pointing out their frequency, particularly in Scarlet Fever, the importance of obtaining a permanent cure if possible, and the additional expense involved by the necessity of detaining these cases in hospital for prolonged periods to prevent the spread of infection.

The report suggested the appointment of a visiting Ear, Nose, and Throat Specialist whose function would be to examine cases presenting such complications, to advise as to their treatment and to perform any operative work found to be necessary. Permission was given to proceed on the lines indicated in the report for an experimental period of twelve months, and the work was commenced in January, 1921 by Dr. Neil Maclay, of Newcastle-upon-Tyne.

Cases developing discharges from the nose or ear were transferred immediately to a special pavilion provided with an examination room and operating theatre, and in charge of a sister with special experience in ear, nose, and throat work, and pending examination by the visiting Otologist, put on to the prescribed routine treatment, altered as found necessary after the special examination had been made and amended

as indicated by subsequent progress. If an operation was considered necessary (chiefly the removal of tonsils and adenoids), the consent of the parents was obtained and the operation performed in the theatre attached to the pavilion.

The results of the year's working have been very satisfactory, as is shown by a comparison with the corresponding figures for 1920. In that year 1,105 cases of Scarlet Fever were admitted, of which number 199 or 19·2 per cent., developed either otorrhœa or rhinorrhœa, necessitating an average stay in hospital for each case of 52·3 days. In 1921, out of 1,115 admissions for Scarlet Fever, 202 or 18·1 per cent. developed similar complications, but the average length of detention in hospital showed a marked reduction. Whereas in the month of January, 1921, the average stay was 51·7 days, or only slightly less than that for the previous year, for the first quarter of 1921 it had fallen to 42 days, for the remaining three quarters it was 36 days, and for the whole year 37·2 days, compared with 52·3 days for 1920. The first year of working therefore has resulted in a reduction of 15·1 days maintenance and treatment for each of 202 cases, compared with the previous year, or a total of 436 weeks.

Subsequent Progress.—187 of the 202 cases have been visited six to twelve months after leaving hospital. At the time of the visit, 155 or 83 per cent. were reported to be quite well and to have had no recurrence of the discharge; 10 had had a temporary relapse but were then quite well, and in 22 the discharge was still present, although in at least half of these, the parent stated that it was only occasionally that any discharge was seen.

Operations.—16 operations were performed with apparent permanent cure in 15, one (a case of acute inflammation of the middle ear with probable commencing meningitis) being still under treatment at home.

The continuance of the scheme therefore appears to be justified, and the indications are that by certain modifications of procedure, a still further though slight saving may be obtained.

The above successful results were due entirely to the enthusiasm of the visiting Otologist and of the several

Resident Medical Assistants who had immediate responsibility for the cases, and also to the constant care and attention of the sister in charge of the special pavilion.

Average stay in Hospital during the last Fourteen Years.

Year.	All Cases.		Scarlet Fever.		Diphtheria.		Enteric Fever.		Other Diseases.	
	No.	Average Stay in Days.	No.	Average Stay in Days.	No.	Average Stay in Days.	No.	Average Stay in Days.	No.	Average Stay in Days.
1908	614	48·4	283	56·3	220	40·0	88	48·5	25	31·8
1909	1,090	49·2	623	54·3	334	41·6	56	45·9	78	42·8
1910	912	44·4	465	51·3	317	37·2	47	46·4	83	32·5
1911	1,110	45·6	605	50·5	375	41·9	68	44·4	62	20·2
1912	1,542	45·8	1,018	46·1	383	45·7	82	46·2	59	20·9
1913	1,286	45·5	853	47·6	254	47·9	109	43·4	70	19·6
1914	1,835	41·6	1,404	44·4	251	34·4	86	41·2	94	20·2
1915	1,886	41·3	1,305	47·1	223	35·6	88	44·0	271	17·2
1916	1,380	35·7	677	42·5	210	38·2	57	48·8	436	22·3
1917	1,303	33·9	409	46·5	164	43·5	12	59·8	718	24·0
1918	1,245	32·1	381	45·2	205	46·6	27	52·3	632	18·7
1919	1,370	33·8	630	41·5	196	54·8	11	39·2	533	16·9
1920	1,710	32·4	1,105	35·0	244	44·8	11	57·5	350	16·7
1921	1,683	28·0	1,115	31·1	241	31·6	9	36·4	318	13·9

Staff Sickness.

Nursing Staff.—66 of the Nursing Staff were off duty due to sickness for a total of 1,060 days. 5 contracted Scarlet Fever, 1 Diphtheria, 1 Rubella, 1 Mumps, 1 Erysipelas, 8 Tonsillitis, and 9 Influenza.

Domestic Staff.—46 were off duty due to sickness for a total of 536 days. 2 contracted Scarlet Fever, 4 Diphtheria, 1 Measles, two Tonsillitis, and 4 Influenza.

Bacteriological Laboratory, City Hospital.

The following examinations were made in connection with the patients in the fever wards:—

Swabs for Diphtheria Bacilli	...	...	1,047
Other Examinations	...	...	7
TOTAL	...	...	<u>1,054</u>

SMALLPOX AND ISOLATION HOSPITALS, TOWN MOOR.

These Hospitals were in use from October to December, 214 Scarlet Fever convalescents from the City Hospital being admitted. A man suffering from Scabies was admitted on two occasions for cleansing.

DISINFECTION.

5,934 cases of notifiable infectious disease have been inquired into by the Infectious Disease Inspectors and Health Visitors, and, with the exception of measles, the houses or rooms connected therewith disinfected by spraying with formalin. In connection with cases of tuberculosis, 539 houses, including 588 rooms, were similarly disinfected. Disinfection was also carried out in 122 special cases.

In all cases amongst civilians, except measles, the bedding and other infected articles were removed to the Disinfecting Station at the City Hospital, Walker Gate, and after sterilisation by steam returned to the owners.

Inquiries were also made in connection with 13 smallpox and 4 cerebro-spinal fever contacts. These persons were kept under observation until the possible incubation period was over.

1,005 extra visits of supervision to the cases left at home were made by the Infectious Disease Inspectors.

INFECTED ARTICLES PURIFIED IN THE DISINFECTING APPARATUS AT THE CITY HOSPITAL FOR INFECTIOUS DISEASES, WALKER GATE, AND THE SMALLPOX HOSPITAL, TOWN MOOR.

ARTICLES FROM CITY.		ARTICLES—HOSPITAL PROPERTY.	
1921.	1920.	1921.	1920.
33,326	25,474	23,408	15,710

3,764 articles of clothing, etc., were also disinfected at the Smallpox Hospital.

The staff have thus dealt with 60,498 articles at the two disinfectors during the year.

The sum of £2 19s. 6d. was paid for goods destroyed on account of exposure to infection.

Fluid disinfectant, in half-pint tins, and disinfectant soap, in pound bars, were given out free on the order of the special inspectors, for home use in connection with infectious disease. Every precaution was taken to ensure that the material so dispensed was properly and economically used.

DISINFECTANTS DISTRIBUTED—1921.

FROM	FOR INFECTIOUS DISEASES.		FOR PHTHISIS.
	FLUID ($\frac{1}{2}$ pint tins.)	SOAP (1 lb. bars.)	FLUID ($\frac{1}{2}$ pint tins.)
Health Department	455	120	...
Tuberculosis Dispensary ...	...	...	120
Corporation Yard, Benwell ...	66	16	...
TOTAL	521	136	120

BACTERIOLOGICAL INVESTIGATIONS, 1921.

The following is a summary of the bacteriological investigations carried out on behalf of the Health Department of the Newcastle Corporation by Professor H. J. Hutchens at the University of Durham College of Medicine, Newcastle.

REPORT.

5,717 specimens were submitted for examination. The nature of the investigations, and the results obtained were as follows :—

	DIPHtheria.			PHTHISIS.			ENTERIC FEVER.		
	Total.	Posi- tive.	Nega- tive.	Total.	Posi- tive.	Nega- tive.	Total.	Posi- tive.	Nega- tive.
No. of Ex- aminations	1,185	213	972	638	148	490	27	1	26

Milk Examinations :—

	Total	Found	Not Found
1. For the tubercle bacillus	165	9	156

2. Bacterial content of organisms other than tubercle bacillus (the colon bacillus being taken as the indicator).

Colon bacilli not found in 1 cc. or less	...	1
Colon bacilli found in 1 cc. but not in less		2
Colon bacilli found in 0·1 cc. but not in less		10
Colon bacilli found in 0·01 cc. but not in less		53
Colon bacilli found in 0·001 cc. but not in less		24
Colon bacilli found in 0·0001 cc. but not in less		30
Colon bacilli found in 0·00001 cc. but not in less		45
		<hr/> 165 <hr/>

Nine samples of certified Grade “A” milk were examined and the following results obtained :—

No. of bacteria per 1 cc.				Colon bacillus test.
<i>a</i>	360	...	...	Present in 1·0 cc. but not in 0·1 cc.
<i>b</i>	8,280	...	...	Present in 0·1 cc.
<i>c</i>	1,150	...	...	Present in 1·0 cc. but not in 0·1 cc.
<i>d</i>	43,600	...	...	Present in 0·1 cc.
<i>e</i>	457,000	...	...	Present in 0·1 cc.
<i>f</i>	21,400	...	...	Not found in 1·0 cc.
<i>g</i>	Uncountable in			
	0·1 cc.	...	...	Present in 0·1 cc.
<i>h</i>	1,700	...	...	Present in 1·0 cc. but not in 0·1 cc.
<i>i</i>	2,940	...	...	Present in 1·0 cc. but not in 0·1 cc.

Water Examinations :—

Class I. (Colon bacilli not found in 100 cc. or less)	0
Class II. (Colon bacilli found in 100 cc. but not in less)	58
Class III. (Colon bacilli found in 10 cc. but not in less)	97
Class IV. (Colon bacilli found in 1 cc. but not in less)	21
	<hr/> 176 <hr/>

Venereal Diseases :—

	WASSERMANN REACTIONS.	MICROSCOPICAL EXAMINATIONS.
		Gonococci, Spirochætes, etc.
No. of Examinations ...	3,178	139

Other Examinations :—

- a* No cases suspected of cerebro-spinal fever or contacts were examined during the year.
- b* Examination of blood for malarial parasites.
2 cases were examined, 1 was found to be infected, and in the other no parasites were present.
- c* 3 cases of suspected enteric carriers were examined, but no specific organisms were isolated.
- d* 8 samples of Vaseline were submitted for examination for the presence of the bacillus of tetanus.
No anærobic organisms of any kind were found except in 2 samples which showed the presence of *B. welchii* and *B. sporogenes*.

Suspected food poisoning :—

- e* In July an outbreak occurred amongst the members of a household and specimens of the incriminated food (salmon and vinegar) and also specimens of fæces and blood of those affected were examined.

During October and November samples of corned beef and vinegar and several specimens of fæces from those affected were examined for a similar reason.

Detailed reports were furnished at the time.

- f* On 15th December, diphtheria-like organism from the throat was tested for virulence and a report was made.

H. J. HUTCHENS,
Bacteriologist.

REPORTS OF THE
TUBERCULOSIS MEDICAL OFFICER
AND THE MEDICAL SUPERINTENDENT
OF BARRASFORD SANATORIUM.

IV. TUBERCULOSIS.

TUBERCULOSIS DISPENSARY—
INSTITUTIONAL TREATMENT.

TUBERCULOSIS.

Report of the Tuberculosis Medical Officer.

TO THE MEDICAL OFFICER OF HEALTH.

SIR,

Herewith I beg to submit my report of the work of the Tuberculosis Section during the year 1921.

There was a decrease in the number of notifications, and also in the number of deaths registered during the year, and it is satisfactory to note that the death rate from tuberculosis is the lowest recorded.

I regret to say that, generally speaking, the home conditions of the notified cases show practically no improvement on previous years, and, as I have always insisted, that is the weakest link in the chain of anti-tuberculosis effort.

Our Voluntary Tuberculosis Care Council is now beginning to do good work, and if it is given the support that it merits, I have every hope that it will be able to improve the conditions under which the patients are being treated in their homes.

As it is a considerable time since notification first came into force, all the notifications received since 1912 have been reviewed, and the details are given in the report.

While tuberculosis of the lungs was only rarely reported secondarily to tuberculosis of other organs, it is important to note that when such cases did occur, the part implicated in the original notification was most frequently the glands, usually of the cervical chain.

The need of an efficient X-rays outfit is felt more urgently than ever, not only from the point of view of diagnosis, but more especially to enable one to visualise the degree to which the lung is collapsed in cases being treated by artificial pneumo-thorax.

This department is therefore working under a serious handicap, for it may be truly said that in this connection the X-rays are practically a sixth "sense," and have for many years been regarded as an essential part of the equipment of an up-to-date chest clinic.

In order to obviate long waits on the part of the patients visiting the Dispensary, all cases are now seen by appointment, and the system is working very well. It appears to be greatly appreciated by the patients.

In conclusion I would like to take this opportunity of recording my appreciation of the valuable services rendered by the nursing and clerical staffs.

Yours faithfully,

W. H. DICKINSON,

Tuberculosis Medical Officer.

REPORT.

Notifications.—850 notifications were received during the year but some were duplicates, so that the total number of new cases was 777, of whom 532 were certified to be suffering from 'pulmonary' and 245 from 'other forms' of tuberculosis.

The details as regards sex and age are given in the accompanying table.

SUMMARY OF NOTIFICATIONS DURING THE PERIOD, 1ST JANUARY TO 31ST DECEMBER, 1921.

AGE PERIODS.	Number of Notifications on Form "A."												Number of Notifications on Form "B."			Number of Notifications on Form "C."		Number of Notifications on Form "D."	
	Primary Notifications.																		
	Total Notifications (including Cases previously notified by other doctors).																		
	0 to 1.	1 to 5.	5 to 10.	10 to 15.	15 to 20.	20 to 25.	25 to 35.	35 to 45.	45 to 55.	55 to 65.	65 and upwards.	TOTAL.							
Pulmonary—	2	11	8	8	27	29	71	75	40	22	3	296	327	During the year, the School Medical Officer referred all suspicious cases to the Tuberculosis Medical Officer.	33	98	9	97	
Males ...	...	9	9	23	29	30	65	39	21	9	2	236	255					
Females	...	...	...	...	...	...	...	...	...	...	...	112	125
Non-Pulmonary—	9	30	18	22	12	5	7	4	5	...	1	133	143						
Males	11	14	4	9	
Females	...	...	...	...	...	...	...	...	...	...	...	...	...
TOTAL ...	21	84	54	82	78	74	152	124	69	33	6	777	850	...	84	150	27	150	

Form "A."—Notification by any Medical Practitioner of a case of Tuberculosis (whether at an Institution or otherwise).
Form "B."—Notification by School Medical Officers of cases of Tuberculosis in children attending Public Elementary Schools of which he has become aware in the course of inspection.
Form "C."—Notification by the Medical Officers of Poor Law Institutions and Sanatoria of persons admitted who are suffering from Tuberculosis.
Form "D."—Notification by the Medical Officers of Poor Law Institutions and Sanatoria of persons discharged who are suffering from Tuberculosis.

NOTIFICATIONS OF PREVIOUS YEARS.

As pulmonary tuberculosis had been notifiable for ten years, and "other forms" of the disease for nearly nine years, it was thought desirable to review all the notifications received up to December 31st, 1921. The total number was 9,193 consisting of 6,473 notifications of tuberculosis of the lungs, and 2,720 notifications of "other forms" of the disease.

Pulmonary Tuberculosis.—Of the lung cases 3,799 were known to be dead, and of the balance 1,921 had attended the dispensary, 138 had been visited by the nurses, while 726 were unknown to the dispensary staff. The bulk of the last mentioned were notified prior to the establishment of the dispensary as will be seen from the table submitted herewith which gives the details:—

NOTIFICATIONS OF PREVIOUS YEARS OF PULMONARY TUBERCULOSIS.

Year Notified.	Primary Notifications.	YEAR OF DEATH.										NOT KNOWN TO BE DEAD.			Gross Total.	Originally notified as "Other Forms" and subsequently Lungs.
		1912	1913	1914	1915	1916	1917	1918	1919	1920	1921	Attended Dispens'y.	Not Attended Dispens'y.	Visited by Nurses.		
*1912	972	356	116	49	44	22	18	17	9	9	2	140	247	...	1029	...
1913	796	...	207	98	34	37	20	13	8	9	10	223	144	1	804	8
1914	665	...	...	228	95	29	14	23	12	8	9	186	63	...	667	2
1915	612	...	...	...	236	74	42	14	17	9	5	155	68	...	620	8
1916	642	...	...	...	...	256	93	35	18	8	10	167	52	13	652	10
1917	590	...	...	...	...	...	244	87	22	14	14	174	32	15	602	12
1918	552	...	...	...	...	...	...	202	66	32	30	176	29	23	558	6
1919	519	...	...	...	...	...	...	...	190	79	26	182	27	18	522	3
1920	593	...	...	...	...	...	...	...	...	203	77	264	31	22	597	4
1921	532	...	...	...	...	...	...	...	...	...	200	254	33	46	533	1
Total	6473	356	323	375	409	418	431	391	342	371	383	1921	726	138	6584	54

*Included in the gross total of 1029 for the year 1912 are 57 cases notified prior to that year.

It is interesting to note that 54 of the patients notified to be suffering from pulmonary tuberculosis had been previously notified as suffering from some other form of tuberculosis. In 31 of these cases the original site of the disease was stated to be in the glands, and in 7 cases the peritoneum had been reported as affected previously. Further details are tabulated below :—

SUBSEQUENT NOTIFICATIONS OF PULMONARY TUBERCULOSIS.

Primary Notification.	Total.	Year of Original Notification.									
		1913	1914	1915	1916	1917	1918	1919	1920	1921	
Hand	1	1	...	...	...	...	...	...	...	...
Glands	31	6	1	4	9	6	2	1	2	...	
General	2	1	...	...	...	...	1	...	...	...
Hip	1	...	1	...	...	...	...	...	...	...
Kidney	1	...	...	1	...	...	...	...	...	...
Foot	1	...	...	1	...	...	...	...	...	...
Peritoneum	7	...	...	1	...	4	...	1	1	...
Larynx	3	...	...	1	...	1	...	...	1	...
Knee	3	...	...	...	1	...	2	...	...	...
Pleura	1	...	...	...	...	1	...	...	...	...
Spine	2	...	...	...	...	...	1	...	...	1
Testicle	1	...	...	...	...	...	...	1	...	...
Total	54	8	2	8	10	12	6	3	4	1	

“Other Forms.”—From February 3rd, 1913, up to December 31st, 1918, more notifications were received in respect of tuberculosis of the glands than any other organ (excluding the lungs, of course) but since the armistice there has been a remarkable decline in the number of notifications received in respect of tuberculous adenitis. The details as to

the number of notifications received in respect of abdominal, meningeal, etc., tuberculosis, is most conveniently seen in table form and is submitted herewith :—

NOTIFICATIONS OF PREVIOUS YEARS OF OTHER FORMS OF TUBERCULOSIS.

Year Notified.	Number of Notifications.	Part Affected.									
		Glands.	Abdomen.	Meninges.	Bones and Joints.	Spinal Column	Skin.	Genito-Urinary	General	Miliary.	Other Organs.
1913	450	154	82	66	74	42	4	9	9	4	6
1914	293	84	71	55	42	14	3	1	16	5	2
1915	352	99	95	66	49	13	2	4	13	7	4
1916	345	123	51	71	57	15	7	5	12	...	4
1917	319	94	81	48	42	22	6	2	14	...	10
1918	267	77	51	52	38	16	10	4	14	1	4
1919	205	34	73	44	22	15	1	3	8	4	1
1920	244	45	62	53	32	15	4	5	18	5	5
1921	245	43	66	49	47	10	5	6	13	2	4
Total	2720	753	632	504	403	162	42	39	117	28	40

Of the 2,720 patients notified, 1,187 were known to be dead on December 31st, 1921, and it is of interest to note that of that number, 1,055, or 38·8 per cent. of the total notified, died in the year of notification, and only 3 per cent. in the following year, and a smaller proportion in each succeeding year. Of those not known to be dead, approximately half had either attended the dispensary or had been visited by one of the nurses. It will be noticed that the vast majority of those unknown to the dispensary were notified some years ago when the dispensary staff was much too small to cope with all the work. The details of the number of notifications, year of

death of fatal cases, and other particulars are tabulated below :—

Year Notified.	Notifications.	Year of Death.									Not known to be dead.			Total.	
		1913	1914	1915	1916	1917	1918	1919	1920	1921	Attended Dispensary	Not Attended Dispensary	Visited by Nurses.		
1913	450	140	15	2	6	5	3	3	...	1	83	184	...	442	8 counted as Pulm. Tub.
1914	293	...	138	8	...	2	1	1	...	...	72	68	1	291	2 do.
1915	352	...	...	144	7	6	4	2	...	...	56	125	...	344	8 do.
1916	345	...	...	...	113	16	4	4	1	1	81	115	...	335	10 do.
1917	319	...	...	...	...	111	8	2	...	2	93	91	...	307	12 do.
1918	267	...	...	...	...	...	108	4	3	5	65	75	1	261	6 do.
1919	205	...	...	...	...	...	...	94	6	3	36	63	...	202	3 do.
1920	244	...	...	...	...	...	...	...	115	7	76	14	28	240	4 do.
1921	245	...	...	...	...	...	...	...	...	92	92	12	48	244	1 do.
Total	2720	140	153	154	126	140	128	110	125	111	654	747	78	2,666	54 do.

Deaths.—475 deaths were registered as due to some form of tuberculosis, and of these 342 were certified as due to pulmonary tuberculosis (including cases of acute phthisis) and 133 to other forms of the disease.

On these figures the death rates per 1,000 population were :

	Number of Deaths.	Death Rate per 1,000 Population.
Pulmonary Tuberculosis	342	1·23
Other Forms of Tuberculosis	133	0·47
Total Tuberculosis Death Rate (uncorrected)	<u>475</u>	<u>1·70</u>

It must be noted, however, that 22 residents of Newcastle died in other parts of the United Kingdom from tuberculosis (20 pulmonary ; 2 other forms), while 46 of the deaths (19 pulmonary ; 27 other forms) registered in Newcastle were those of temporary residents.

The corrected deaths and death rates per 1,000 of the population were :—

	Number of Deaths.	Death Rate per 1,000 Population.
Pulmonary Tuberculosis	343	1·23
Other Forms	108	0·39
All forms of Tuberculosis (corrected)	<u>451</u>	<u>1·62</u>

The details as regards sex and age together with the form of the disease are given for 437 persons who were residents of Newcastle and died in the city, in the accompanying table.

DEATHS FROM TUBERCULOSIS.—Sex and Age Distribution.

	Under 1 year.		1 and 2		3 and 4		5 to 10		10 to 15		15		16 to 20		20 to 25		25 to 35		35 to 45		45 to 55		55 to 65		65 to 70		70 and upwards		Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Pulmonary Tuberculosis ...	2	...	6	2	2	3	1	4	4	10	...	2	15	14	18	14	34	36	39	22	35	18	20	8	...	1	4	2	180	136
Acute Phthisis ...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	3	2	1	...	2	...	...	...	...	...	...	...	...	8	2
Acute Miliary Tuberculosis ...	...	...	1	...	...	...	1	1	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	2	2
Tuberculous Meningitis ...	...	4	6	4	1	5	7	4	4	7	...	...	1	...	...	2	...	...	...	...	1	...	...	...	...	...	...	...	22	26
Abdominal Tuberculosis ...	2	2	4	2	1	...	1	2	2	1	1	1	1	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	12	10
Spinal Column ...	...	...	1	1	...	...	...	...	1	...	...	...	2	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	4	2
Tuberculosis of Joints ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculosis of Skin ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tuberculosis of Larynx ...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	1	2
Disseminated Tuberculosis ...	...	...	...	2	1	2	3	2	2	...	...	1	1	1	...	1	2	...	...	3	...	...	...	...	...	...	...	...	11	10
Tuberculosis of other Organs ...	...	1	...	...	...	...	...	...	1	3	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	3	4
TOTAL ...	4	7	18	11	5	10	14	13	14	22	1	4	22	16	19	17	40	41	40	23	42	19	20	8	...	1	4	2	243	194

N.B.—The above only includes those persons who were residents of, and died in, Newcastle-upon-Tyne.

76·4 per cent. of the 'lung' cases were known to the dispensary staff, 197 having visited the dispensary and an additional 52 having been attended in their homes by the visiting nurses.

Only 23·4 per cent. of the 'other forms' were attended at or from the dispensary, but this is due to the fact that nearly 50 per cent. of the non-pulmonary cases were not notified before death (see later).

Of 326 deaths from pulmonary tuberculosis the diagnosis was verified bacteriologically in 218 instances, *i.e.*, 66·8 per cent.

If the 56 unnotified cases be excluded, the percentage is 80·7—a satisfactory figure.

Duration of Illness.—Wherever possible, in pulmonary cases, enquiry was made as to the length of time the deceased had been ill, and the average duration of illness was found to be 31·6 months. As in previous years, important differences were discovered when age and sex were considered, the figures being 36·4 months for adult males, 24·6 months for adult females, and 16·0 months for those below 16 years of age (both sexes).

The period between notification and death was, as one would expect, longer in the adult males than in the adult females and children, but averaged 14·0 months for all cases.

As the duration of illness for all cases was 31·6 months, each patient who died during the year must, on the average, have been ill for nearly 18 months before notification.

43·9 per cent. of the patients had either not been notified prior to death (17·2 per cent.), or died within 3 months of notification (26·7 per cent.) and in consequence little or nothing could be done for them.

Further details and comparative figures for previous years are submitted on next page :—

RETURN OF DEATHS FROM TUBERCULOSIS OF THE
LUNGS OCCURRING IN:—

	Deaths which occurred in these years.											
	1913	1914	1915	1916	1917	1918	1919	1920	1921			
									M.	F.	Chil- dren.	TOTAL.
Persons not notified	39	57	38	27	55	67	43	52	17	26	13	56
„ notified under 1 month	36	28	46	42	26	42	62	46	21	13	11	45
„ between 1 and 3 „	71	92	98	113	97	73	33	49	21	19	2	42
„ „ 3 „ 6 „	49	54	47	61	56	27	29	41	19	13	5	37
Total under 6 months ...	195	231	229	243	234	209	167	188	78	71	31	180
Persons notified between 6 and 12 months...	57	49	37	43	47	50	38	51	24	19	3	46
„ 12 „ 18 „ ...	29	25	32	25	30	19	19	26	16	5	...	21
„ 18 „ 24 „ ...	14	12	21	14	17	20	12	15	10	3	...	13
„ 2 „ 3 years ...	2	32	24	24	17	15	19	20	10	5	3	18
„ over 3 years ...	...	2	24	39	38	51	47	42	34	14	...	48
TOTAL	297	351	367	388	383	364	302	342	172	117	37	326

N.B.—The above deaths are those persons who were residents of, and died in,
Newcastle-upon-Tyne.

The figures for non-pulmonary forms of tuberculosis were even worse, for in 52 instances out of the 111 deaths, *i.e.*, nearly 50 per cent., the disease had not been notified prior to death.

While this is partly due to the fact that there is a great shortage of institutional accommodation for the treatment of non-pulmonary forms of the disease, the figures show that there is still great laxity in respect of the notification of all forms of tuberculosis.

Occupation.—The nature of the work done and the conditions under which it is carried on have an important bearing on the incidence of disease, and probably account for the large excess (approximately 50 per cent.) of adult male over adult female deaths from pulmonary tuberculosis.

173 ‘insured persons’ (139 males and 34 females) are included in the 326 deaths.

44 of the males were ex-Service men.

Family History.—In 86 instances amongst the 314 cases investigated after death, *i.e.*, in 27·4 per cent., there was a history that some near relation was suffering from, or had died of pulmonary tuberculosis. Here again the influence of sex was shown, for the figures were 24·8 for men, 32·7 for women.

House Accommodation.—The home conditions of the working classes are intimately associated with occupation and family history as predisposing to tuberculosis.

The numbers of rooms in the dwellings occupied by 314 persons who died of phthisis were as follows :—

Rooms in Dwelling.	1	2	3	4	More than 4	Common Lodging Houses.	Total.
Deaths ...	31	93	76	49	63	2	314

As regards the type of house occupied 190 were flats, 53 tenements, 69 self-contained, and 2 common lodging houses.

Ward Distribution of Tuberculosis.—Considerable interest attaches to the prevalence of tuberculosis in the various wards of the City, and a table has been prepared showing, for each ward, the estimated populations, the number of notifications and deaths, together with the rates per thousand.

It is apparent at once, from the table, that the death rate per thousand population (which in the case of tuberculosis is of far more practical value than the notified incidence per thousand) is much higher in the poorer and congested wards than in those enjoying more favourable conditions, and also that the largest number of infective foci are found in those quarters in which it is most difficult to prevent the spread of infection.

WARD DISTRIBUTION OF TUBERCULOSIS. 1921.

WARD.	Population 1921.	NOTIFICATIONS.						DEATHS.						New Patients Dispensary Register.
		Pulmonary.	Attack rate per 1,000 of population.	Non- Pulmonary.	Attack rate per 1,000 of population.	TOTAL.	Attack rate per 1,000 of population.	Pulmonary.	Death rate per 1,000 of population.	Non- Pulmonary.	Death rate per 1,000 of population.	TOTAL.	Death rate per 1,000 of population.	
St. Nicholas'	3,658	14	3.83	1	0.27	15	4.10	7	1.91	1	0.27	8	2.18	15
St. Thomas'	14,464	18	1.24	8	0.55	26	1.79	13	0.90	4	0.27	17	1.17	26
St. John's ...	15,742	32	2.03	11	0.70	43	2.73	21	1.33	7	0.44	28	1.77	76
Stephenson	19,226	38	1.91	18	0.90	56	2.81	15	0.78	9	0.47	24	1.25	58
Armstrong	16,021	30	1.87	42	2.62	72	4.49	17	1.06	10	0.62	27	1.68	94
Elswick ...	12,967	14	1.08	7	0.54	21	1.62	11	0.85	4	0.31	15	1.16	36
Westgate ...	15,651	31	1.98	12	0.76	43	2.74	16	1.02	4	0.25	20	1.27	48
Arthur's Hill	11,717	11	0.94	1	0.08	12	1.02	8	0.68	1	0.08	9	0.76	9
Benwell ...	18,030	40	2.22	27	1.49	67	3.71	18	1.00	15	0.83	33	1.83	73
Fenham ...	11,313	25	2.21	4	0.35	29	2.56	13	1.15	...	...	13	1.15	26
All Saints ...	18,150	49	2.70	20	1.10	69	3.80	26	1.43	10	0.55	36	1.98	95
St. Andrew's	12,794	38	2.97	10	0.78	48	3.75	29	2.26	5	0.39	34	2.65	53
Jesmond ...	11,328	14	1.23	1	0.09	15	1.32	12	1.06	...	...	12	1.06	14
Dene ...	12,489	12	0.96	5	0.40	17	1.36	8	0.64	2	0.16	10	0.80	16
Heaton ...	15,897	21	1.32	8	0.50	29	1.82	22	1.38	5	0.31	27	1.69	39
Byker ...	17,925	41	2.28	19	1.06	60	3.34	26	1.45	7	0.39	33	1.84	73
St. Lawrence	18,363	37	2.01	17	0.93	54	2.94	29	1.58	10	0.54	39	2.12	82
St. Anthony's	16,182	23	1.42	20	1.23	43	2.65	14	0.86	10	0.62	24	1.48	53
Walker ...	16,483	44	2.67	14	0.85	58	3.52	20	1.21	7	0.42	27	1.63	70
City ...	278,400	532	1.91	245	0.88	777	2.79	325	1.17	111	0.39	436	1.56	956

NOTE.—Deaths occurring in Public Institutions have been allocated in every case to the Wards in which they resided.
The figures relating to deaths only include those persons who were residents of, and died in, Newcastle-upon-Tyne.

THE TUBERCULOSIS DISPENSARY.

The number of new patients entered on the register was 956.

381 of them were sent direct by general practitioners, 244 were referred to the dispensary by the visiting nurses, 74 were sent by the Local War Pensions Committee or Medical Boards, 94 by the School Medical Officers and the remainder came from various sources, *e.g.*, Royal Infirmary 49, Citizen's Service Society, etc.

243 had been notified previously, and the balance (713) were contacts or suspects and 167 of these were notified by the Tuberculosis Medical Officer.

397 were 'insured' persons, and 472 were dependents of 'insured persons,' leaving only 87 of the uninsured classes.

In respect of these new patients, after observation it was found that over 60 per cent. were not suffering from active tuberculosis.

2,589 patients visited the dispensary during the course of the year, and registered 9,783 attendances, an average of nearly 4 per patient.

The total number of complete physical examinations made was 2,444, including 1,138 males, out of 3,576 attendances; 483 females, out of 1,660 attendances; and 820 children out of 4,547 attendances; giving an average of 1 every 3 visits for males, every 4 for females, and every 6 for children.

23·7 per cent. of the cases had been verified bacteriologically—40 per cent. of the males, 30 per cent. of the

females, and only 2·6 per cent. of those under 16 years of age. The details are tabulated below :—

Sputum Examination.	Number of Patients who attended the Dispensary during the Year 1921.				Ex-Service Men (included in the Total).
	Total.	Males.	Females.	Under 16 years of age	
Bacilli found	614	430	158	26	227
Bacilli <i>not</i> found	1,975	644	367	964	356
Total	2,589	1,074	525	990	583

Sputum Positive Cases.—The number of living sputum-positive cases on the Dispensary register at the end of the year was 595, consisting of 425 males (including 204 ex-Service men) 151 females and 19 children.

480 of these cases had attended the Dispensary during the year 1921, and 115 failed to do so, some because they were unable to come, while others refused on the grounds that they did not need any advice or assistance.

Many of these cases have been attending for several years, and the year of booking is given in the subjoined tables, together with the ages of the patients :—

AGES OF PERSONS ALIVE ON DECEMBER 31ST, 1921, IN WHOSE SPUTUM TUBERCLE BACILLI HAD BEEN FOUND; TOGETHER WITH THE YEAR IN WHICH THEY WERE ENTERED ON THE DISPENSARY REGISTER.

Children.

Year.	1 to 5.		5 to 10.		10 to 15.		15 Years.		Total.	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
1913
1914
1915	1	...	...	...	1	...
1916
1917	1	...	1	...	...	...	2
1918	1	2	...	...	...	2	1
1919	1	...	...	...	1	...	2
1920	1	1	2	1	...	2	3
1921	4	...	2	...	6
Total	4	4	7	1	3	5	14

AGES OF PERSONS ALIVE ON DECEMBER 31ST, 1921, IN WHOSE SPUTUM TUBERCLE BACILLI HAD BEEN FOUND ; TOGETHER WITH THE YEAR IN WHICH THEY WERE ENTERED ON THE DISPENSARY REGISTER.

Males.

Year.	16 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 and upward.	Total.
1913	...	1	8	9	4	...	...	22
1914	1	2	8	4	5	1	...	21
1915	...	2	1	3	5	2	...	13
1916	...	2	6	2	4	2	1	17
1917	2	7	7	5	3	...	...	24
1918	...	2	3	3	6	2	2	18
1919	1	3	2	3	5	...	...	14
1920	3	6	2	12	15	2	1	41
1921	10	4	10	14	9	3	1	51
Total ...	17	29	47	55	56	12	5	221

Discharged Soldiers.

1913	...	...	1	2	...	...	...	3
1914	...	...	2	...	...	...	...	2
1915	...	...	1	2	...	...	...	3
1916	...	4	4	3	...	...	...	11
1917	...	...	7	7	...	...	...	14
1918	...	6	11	8	2	...	...	27
1919	...	5	19	5	5	1	...	35
1920	...	15	22	14	4	1	...	56
1921	...	10	22	16	5	...	...	53
Total ...	...	40	89	57	16	2	...	204

Females.

1913	1	1	3	1	3	...	...	9
1914	...	3	8	4	...	1	...	16
1915	2	...	4	2	1	1	...	10
1916	2	4	5	1	...	1	...	13
1917	2	1	2	2	2	...	...	9
1918	1	...	3	2	1	...	...	7
1919	3	3	9	1	1	2	...	19
1920	1	6	7	7	1	3	...	25
1921	9	6	15	8	4	1	...	43
Total ...	21	24	56	28	13	9	...	151

“Negative” Cases.—The records of the patients in respect of whom no tubercle bacilli have been found in the sputum are filed separately from those of the sputum positive cases, and 1,975 patients in this category attended during the year. This number included 1,146 males (356 ex-service men) and 829 females. The preponderance of male cases was nothing like so pronounced as in the sputum positive group, and it is noteworthy that children were much more numerous, constituting 48·8 per cent. of the total as opposed to 4·2 per cent. of the bacteriologically verified cases. While the majority of these “negative” cases were “suspects” or “contacts,” 708 had been notified as suffering from some form of tuberculosis. The details are set out below :—

“NEGATIVE” CASES WHO ATTENDED THE DISPENSARY DURING 1921.

Notified.				Males.	Females.	TOTAL.
Lungs	...	...	...	258	183	441
Glands	...	...	...	53	61	114
Abdominal	...	...	...	20	29	49
Joints	...	...	...	21	21	42
Bones	...	...	...	15	9	24
Spine	...	...	...	7	5	12
Skin	...	...	...	4	6	10
Disseminated	...	...	...	6	2	8
Genito-Urinary	...	...	...	4	1	5
Meninges	...	...	...	2	1	3
Not Notified	...	...	...	756	511	1,267
Total				1,146	829	1,975

The year in which the various patients first attended the Dispensary is given in the subjoined table.

YEAR PATIENTS FIRST ATTENDED DISPENSARY.

1913		1914		1915		1916		1917		1918		1919		1920		1921		TOTAL.	
M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
25	22	29	27	37	35	57	38	91	65	114	69	119	96	250	170	424	307	1,146	829

Every effort is made to verify each notified case by bacteriological means, and during the year 1,697 specimens of sputum were examined at the Dispensary.

Of this number 379 were found to contain tubercle bacilli while 1,318 gave negative results.

In addition 638 samples of sputum were sent, for examination, to the College of Medicine by the medical practitioners of the city.

Of these 148 proved positive, and 490 negative.

Work of the Nurses.—793 new patients were seen as against 712 in 1920, and 12,077 subsequent visits were made, giving a grand total of 12,870 for the year.

2,889 of these visits were paid to ex-Service men.

The number of patients on the Nurses' lists on December 31st, 1921, was 2,267, comprising 952 males (including 455 ex-Service men), 538 females, and 777 children.

In 552 cases tubercle bacilli had been found in the sputum, and special attention has always been paid to these infective cases.

They are visited at least once monthly, and their contacts are kept under the closest possible supervision.

The Work of the Sanitary Inspector.—This officer disinfects houses after deaths or changes of address of consumptives, arranges for the removal and disinfection of phthisical patients' clothing and bedding, and reports on any insanitary conditions existing in the homes of dispensary patients, such as overcrowding, insufficient ventilation, or defective sanitary arrangements.

The details of his work were as follows :—

Houses visited	...	...	...	...	...	544
Houses disinfected (total)	...	...	...	...	...	539
For patients going to Sanatoria	...	...	...	...	...	107
„ „ changing their address	...	...	...	...	...	18
„ „ changing their rooms	...	...	...	...	...	3
„ „ going to Hospital	...	...	...	...	...	158
After death	...	...	...	...	...	253
Rooms disinfected in above houses	...	...	...	...	...	588
Total number of visits	...	...	...	...	...	1,084
Houses found to have sanitary defects (including overcrowding) and referred to the Inspector of Nuisances	...	...	...	...	...	76

INSTITUTIONAL TREATMENT.

45 beds were provided at Barrasford Sanatorium for early or moderately advanced cases of pulmonary tuberculosis, 62 beds were available for more advanced or emergency cases at the Sanatorium Pavilions at the City Hospital, Walker Gate, while at Stannington Sanatorium 30 beds were maintained for the treatment of tuberculous children.

Barrasford Sanatorium.—112 persons completed treatment at this institution during the year.

The details as to “insured” and “uninsured” persons, males and females, together with the average length of stay in the institution, are submitted herewith:—

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM DURING YEAR 1921.

	In Barrasford Sanatorium on 1st January, 1921.	Admitted during year.	Persons who completed treatment during year.			In Barrasford on 31st Dec., 1921.
			Number.	Total Number of days.	Average Length of Stay in days.	
Uninsured Males ...	6	9	13	1,732	133	2
Uninsured Females...	9	10	13	1,637	126	6
Insured Males ...	23	74	75	8,412	113	22
Insured Females ...	4	8	11	1,763	160	1
Total ...	42	101	112	13,544	122	31

The results of treatment were satisfactory, and the condition of the patients on discharge was as follows:—

RESULTS.					Males.	Females.	Total.
(a) Fit to work ...	...	...	...	...	55	17	72
(b) Improved ...	...	...	...	...	17	1	18
(c) Without improvement ...	...	...	...	...	15	*6	21
(d) Worse ...	...	...	...	...	1	...	1
Total ...	...	...	...	...	88	24	112

*Including 1 patient who was in the Sanatorium less than 12 days.

Each discharged patient is visited at frequent intervals by one of the Dispensary Staff and is encouraged to report periodically so that he can be examined and records kept of his condition.

In the next table a summary is given of the condition on December 31st, 1921, of all the patients treated at the Corporation expense since 1908. It will be noticed that most of the earlier cases are returned as dead or untraceable:—

PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM,
AND THE RESULTS.

YEAR.	Number of Patients discharged from Barrasford Sanatorium.	MALES.	FEMALES.	Condition at end of Year 1921.					Total Number of days in the Sanatorium.	Average number of days in the Sanatorium.
				Well, working or fit to work.	Improved or moderately well	Relapsed.	Dead.	Lost sight of, or left the district		
1909	55	34	21	2	6	...	35	12	6,260	114
1910	64	41	23	6	3	...	39	16	6,471	101
1911	71	45	26	11	3	1	47	9	6,868	97
1912	67	47	20	8	3	...	38	18	5,396	81
1913	85	58	27	17	3	...	43	22	9,567	112
1914	78	59	19	26	3	2	37	10	9,723	124
1915	74	54	20	16	5	...	33	20	10,803	146
1916	64	45	19	12	4	3	31	14	10,005	156
1917	68	45	23	20	8	2	28	10	10,603	156
1918	89	81	8	40	7	1	31	10	11,926	134
1919	107	85	22	42	15	3	34	13	14,207	133
1920	131	105	26	61	28	4	28	10	17,127	129
1921	112	88	24	68	24	8	11	1	13,544	122
TOTAL...	1,065	787	278	329	112	24	435	165	132,500	124
Received treatment in previous years ...	43	29	14	12	8	1	18	4	...	...
Nett Cases	1,022	758	264	317	104	23	417	161	132,500	124

While the appearance of tubercle bacilli in the sputum indicates that there is active destruction of lung tissue, still it must be recognised that there is always a doubt about any case in which the diagnosis has not been verified bacteriologically.

Accordingly the bacterial history of each patient admitted to Barrasford Sanatorium has been investigated as thoroughly as possible, and the results are tabulated below :—

BACTERIAL HISTORY OF
PATIENTS WHO RECEIVED TREATMENT IN BARRASFORD SANATORIUM.

YEAR.	Persons discharged from Barrasford Sanatorium.			Number who had Tubercle Bacilli found in the Sputum after discharge.	Persons deceased at the end of the year.				Cases who had Tubercle Bacilli in the Sputum and could not be traced at end of Year.
	TOTAL Nett Cases.	Number who had Tubercle Bacilli found in the Sputum.	Number who had <i>not</i> Tubercle Bacilli found in the Sputum.		TOTAL.	Tubercle Bacilli found in the Sputum before or during treatment.	Tubercle Bacilli <i>not</i> found in the Sputum before or during treatment.	Tubercle Bacilli found in the Sputum after discharge.	
1909	55	35	20	2	35	29	5	1	2
1910	64	46	18	3	39	32	4	3	10
1911	66	44	22	6	43	35	4	4	5
1912	63	36	27	9	35	26	4	5	9
1913	81	54	27	3	42	33	6	3	11
1914	74	52	22	1	35	34	1	...	3
1915	73	51	22	3	32	28	1	3	7
1916	63	49	14	3	31	28	1	2	7
1917	64	41	23	5	25	21	2	2	6
1918	83	54	29	4	29	25	2	2	8
1919	102	82	20	4	33	33	...	...	8
1920	127	89	38	2	27	26	1	...	7
1921	107	85	22	5	11	9	1	1	1
TOTAL.	1,022	718	304	50	417	359	32	26	84

From the above it is obvious that the finding of tubercle bacilli before or during treatment renders the prognosis much more grave.

STANNINGTON SANATORIUM.

The 30 beds were kept fully occupied throughout the year and 39 patients completed treatment.

The details appear below :—

CHILDREN WHO RECEIVED TREATMENT IN STANNINGTON SANATORIUM DURING YEAR 1921.

	In Sana- torium on 1st Jan., 1921.	Admitted during the year.	Persons who completed treatment during the year.			In Sana- torium on 31st Dec., 1921.
			Number.	Total number of days.	Average length of stay in days.	
Males	13	21	19	4,667	245	15
Females	14	21	20	4,734	236	15
Total	27	42	39	9,401	241	30

In nearly every case great benefit accrued to the patient as is shown in the following return:—

	Males.	Females.	Total.
(a) Much Improved	7	7	14
(b) Improved	11	11	22
(c) Without Improvement ...	1	2	3
(d) Worse ... ..	...	...	...
Total	19	20	39

SANATORIUM PAVILIONS, WALKER GATE.

There has been great demand for the beds provided here, and of the 174 patients admitted 81 were men discharged from the services suffering from tuberculosis.

Of the above number, 19 were pensioners residing in other districts, and the expenses of their maintenance were defrayed

by the authorities responsible for their admission. Further details regarding the patients treated during the year are given in the accompanying table :—

PATIENTS WHO RECEIVED TREATMENT IN SANATORIUM PAVILIONS
AT THE CITY HOSPITAL, WALKER GATE, DURING YEAR 1921.

	Patients in Hos- pital on 1st Jan., 1921.	Patients admitted.	Patients who have completed treatment.			In Hospital 31st Dec., 1921.
			Number.	Total number of days.	Average length of stay in days.	
Uninsured, Male ...	5	9	11	2,570	234	3
" Female ...	15	36	37	6,801	184	14
Insured, Male ...	34	117	114	15,766	138	37
" Female ...	4	12	12	1,744	145	4
Total ...	58	174	174	26,881	154	58

N.B.—6 patients were re-admitted and are counted as 12 admissions.

The results of treatment where completed are as follows :—

	Males.	Females.	Total.
(a) Fit to Work ...	5	...	5
(b) Improved ...	51	24	75
(c) Without Improvement ...	34	10	44
(d) Died in Hospital ...	35	15	50
Total ...	125	49	174

1 patient was transferred to Barrasford Sanatorium.

Of the 50 patients who died in the institution, 45 were Newcastle residents; and 5 were pensioners from other districts.

The various activities of the Tuberculosis Section have been summarised, and are set out on the following page together with the corresponding figures for previous years.

TUBERCULOSIS SECTION.
ANNUAL SUMMARY OF WORK DONE.

	1921	1920	1919	1918	1917	1916	1915	1914	1913
<i>Notifications</i> ... Total	777	837	724	819	909	987	964	958	1246
Lungs	532	593	519	552	590	642	612	665	796
Other Forms	245	244	205	267	319	345	352	293	450
Notified by T. M. O. ...	167	213	145	221	244	162	146	180	140
<i>Deaths (Corrected)</i> Total	451	489	455	531	571	557	542	529	479
Lungs	343	368	339	393	411	417	380	375	326
Other Forms	108	121	116	138	160	140	162	154	153
<i>Attendances at Dispensary</i>	9783	12170	10332	11517	9286	7758	6473	6712	3656
New Patients	956	1074	819	904	969	850	899	1046	729
<i>Barrasford Sanatorium.</i>									
Admitted	101	130	114	95	69	67	70	78	86
Discharged	112	131	107	89	68	64	74	78	86
<i>Stannington Sanatorium.</i>									
Admitted	42	46	45	48	55	74	65	78	17
Discharged	39	50	43	49	55	73	65	55	11
<i>Sanatorium Pavilions, Walker Gate.</i>									
Admitted	174	167	185	207	181	146	54	40	38
Discharged	124	113	125	151	138	89	38	27	16
Died	50	62	48	30	48	26	17	14	8
<i>Bacteriological Exams.</i>									
<i>College of Medicine—Total</i>	638	652	642	529	604	624	600	714	910
Sputum—Positive ...	148	171	134	129	159	172	147	202	207
Negative	490	481	508	400	445	452	453	512	703
<i>Dispensary</i> ... Total	1697	1827	1266	1080	957	708	608	764	354
Sputum—Positive ...	379	434	306	233	204	146	140	182	85
Negative	1318	1393	960	847	753	562	468	582	269
<i>Urine Examinations</i> ...	988	1107	832	812	806	681	272	...	...
<i>Evening Consultations.</i>									
Attendances	1171	1759	1499	1455	1264	1180	1124	1000	546
New Patients	57	89	53	57	84	96	128	130	59
<i>Work of Nurses.</i>									
New Patients	793	712	393	463	336	505	1055	1306	799
Subsequent Visits ...	12077	13211	10976	9668	6188	7515	5429	6444	1235
Total ,,	12870	13923	11369	10131	6524	8020	6484	7750	2014
East District	3757	5752	4360	2993	2530	4050	3323	3729	...
West District	3978	5393	3244	4499	3777	3970	3161	3921	...
Central District	5135	2778	3765	2639	217	...	...	...	...
<i>Special Inspector's Visits</i>	1084	1077	962	933	1110	1070	1400	2385	1835
Houses Disinfected ...	539	519	461	504	554	537	512	549	514
Rooms Disinfected ...	588	625	526	557	701	619	779	1077	1089
Sanitary Defects—Houses	76	123	29	22	34	17	23	48	71

W. H. DICKINSON, M.B., D.P.H.,

Tuberculosis Medical Officer.

BARRASFORD SANATORIUM.

Report of the Medical Superintendent.

TO THE MEDICAL OFFICER OF HEALTH.

SIR,

I beg to submit to you a report of the work completed at Barrasford Sanatorium during the year 1921.

The Sanatorium was acquired by the Newcastle-upon-Tyne Corporation on February 19th, 1921, being taken over from the Voluntary Committee, a branch of the National Association for the Prevention of Consumption, by whom it was founded and opened in May, 1907.

The Institution is situated 24 miles by road to the W.N.W. of Newcastle, and at an altitude of 600 feet above the sea level. The area of the estate is about 60 acres.

Apart from its extreme isolation, the situation of the Sanatorium is tolerably suitable for the treatment of chosen cases of Pulmonary Tuberculosis.

The countryside is extremely wind swept, the most prevalent wind being North West: whereas that for the whole country generally is South West.

On an average the rainfall is not excessive, and the daily duration of sunshine is thought to be above the average.

The pine trees, thought to be an essential for every Sanatorium site of 10-15 years ago, are present in a strip of plantation to the East of the building.

The winters usually are rigorous, with high winds.

Originally providing rooms for 50 patients, 4 extra rooms were added in 1916, and in 1918 a number of single rooms were "doubled," and with a gift of five revolving shelters from the Elswick Works Medical Charities Fund the present day number of beds is 95.

It was not found so easy, however, to accommodate the extra staff required for the additional patients, and the housing of the nursing and domestic staff is not altogether satisfactory.

The building is what is known as the "temporary" variety, and the cost, including that of the site and furnishing, was £460 per bed (for the original number of beds, 50).

During the year the Corporation has been able to make improvements which have had far reaching effects in increasing the efficiency and ease of administration of the Sanatorium, the outstanding of these being:—

- 1.—The augmentation of the water supply by means of a pipe line from the Newcastle and Gateshead Water Co.'s main.
- 2.—The installation of a new and modern sewage purification plant.
- 3.—The provision of motor transport.

The original water supply has been failing for a considerable period, and very drastic curtailments were necessary in 1920, and until the completion of the new work.

Beds have been occupied by patients from several Authorities, and a list of these, with the numbers of patients, follows.

During the latter half of the year there was an increased demand for beds as compared with the first six months.

ADMISSIONS TO SANATORIUM DURING 1921.

Authority.	Males.	Females.	Total.
Newcastle Corporation	83	18	101
Northumberland County Council ...	76	25	101
Gateshead Corporation	34	...	34
Tynemouth Corporation	2	5	7
West Hartlepool Corporation	15	10	25
South Shields Corporation	1	...	1
Elswick Works Medical Charities Fund	5	...	5
Private	4	2	6
	220	60	280

DISCHARGES FROM SANATORIUM DURING 1921.

Authority.	Males.	Females.	Total.
Newcastle Corporation	88	24	112
Northumberland County Council ...	74	26	100
Gateshead Corporation	30	...	30
Tynemouth Corporation	1	6	7
West Hartlepool Corporation	7	3	10
South Shields Corporation	1	...	1
Elswick Works Medical Charities Fund	4	1	5
Private	7	2	9
	212	62	274

SUMMARY OF MOVEMENTS OF PATIENTS DURING 1921.

	In residence night of Dec. 31st, 1920.	Admitted during 1921.	Discharged during 1921.	In residence night of Dec. 31st, 1921.
Newcastle Corporation	42	101	112	31
Northumberland County Council ...	29	101	100	30
Gateshead Corporation	9	34	30	13
Tynemouth Corporation	2	7	7	2
West Hartlepool Corporation ... ..	...	25	10	15
South Shields Corporation ... ..	...	1	1	...
Elswick Works Medical Charities Fund	2	5	5	2
Private	3	6	9	...
	87	280	274	93

The average length of stay of all patients who completed treatment during the year was 109·7 days, but excluding 17 who for various reasons remained only 28 days or less and who therefore did not attempt seriously sanatorium treatment, the average was raised to 115·9, or over four lunar months.

The average number of beds occupied daily during the year was 87·9, and total number of patient days was 32,088.

Amongst a considerable number of doubtful cases sent in to the Sanatorium for the purpose of diagnosis, 16 patients, 13 males and 3 females, were discharged as not suffering from active pulmonary tuberculosis, and when considering the results of treatment this figure must be deducted from the full number of discharged patients (274).

Of the remaining 258 apparently definite cases who completed treatment, the immediate results were as follows :—

State on Discharge.	Males.	Females.	Total.
Fit for work	67	21	88
Improved	80	28	108
Without improvement ...	40	8	48
Worse	10	2	12
Died in Institution	2	...	2
Total	199	59	258

The Weight Histories of the 274 discharged patients are as follows :—

		Gained 1 to 7 lbs.	Gained 7 to 14 lbs.	Gained over 14 lbs.	Remained station- ary.	Lost 1 to 7 lbs.	Not weighed on discharge	Total.
258 definite cases.	Gained weight...	77	95	46	...	...	...	218
	Lost weight ...	...	...	...	...	28	...	28
	Stationary ...	...	...	...	3	...	...	3
	Not weighed on discharge ...	...	...	...	...	...	9	9
Total ... ..		...	...	...	...	...	...	258
16 not suffering from active Pulmon- ary Tuber- culosis.	Gained weight...	10	5	...	...	...	...	15
	Not weighed on Discharge ...	...	...	...	...	...	1	1
	Total ...	...	...	...	...	...	...	16

Tubercle bacilli were found in the sputum either before admission or during treatment in 167 cases, 15 cases had no sputum, and 92 patients were apparently without bacilli in the sputum.

During the year 531 sputum examinations were made in connection with the completed cases and of these 143 were positive and 388 were negative.

1,051 completed physical examinations of the chest were made from the time the Corporation took over the Sanatorium until the end of the year.

The majority of the cases sent for treatment have been suitable ones.

It is worthy of note that it is extremely rare to find a sound dental condition amongst the industrial classes admitted to the Sanatorium. The great majority have numerous decayed teeth; a smaller number have every tooth carious, together with a septic condition of gums and sockets. Occasionally a patient is sent who is toothless.

Indigestion from any cause is a formidable complication.

Treatment.—Treatment has been carried out on the usual lines of rest and fresh air, combined with graduated exercise.

Rest is by far the most important measure in the treatment of active pulmonary tuberculosis.

The carrying of open air regimen to the extent of causing discomfort and even misery owing to cold in winter, as used to be the vogue, has been considerably modified without apparently impairing the results. Fresh air is a necessity—bitterly cold air is undesirable and even harmful.

Treatment by air compression of the lung (artificial pneumo-thorax) has been employed in some suitable cases, but not to the desired extent, on account of the absence of an efficient X-ray plant, and the limited time at the disposal of the Medical Superintendent.

Various other special forms of treatment have been used, but without any appreciable benefit not obtained by routine methods.

Food.—The food is plain, wholesome, and abundant, and patients are encouraged to eat heartily, but to avoid “stuffing.”

Increase in weight to beyond that of the individual's normal in health is not desired, and when it occurs it is promptly lost on the patient's discharge, with, in the writer's opinion, an adverse psychological effect, in that the patient imagines that he is immediately losing ground.

Mode of Life.—Patients live an essentially fresh-air life, and when it is certain that they are free from fever they are sent morning and afternoon on walks, which are prescribed daily to each individual by the doctor, and gradually increased until at the end of, as a rule, 6 or 8 weeks, an average patient is walking 7 or 8 miles a day.

When a patient has been on full exercise for a few weeks with general improvement, he is offered a little light work as an alternative to the morning walk. This is to be regarded as a means of varying the monotony rather than as an attempt at real work.

As already stated the basis of treatment is rest (as for a broken limb, or any other condition) and hard work has no place in this Sanatorium's routine, however carefully it might be graduated. The question of work could be reviewed if the length of stay were very considerably increased.

A patient who is on full walks has, or should have, little time unoccupied.

During the period between tea and supper the recreation room is widely used. There is the nucleus of an excellent library, which has been contributed to by the Libraries Committee of the Newcastle Corporation and the British Red Cross Society, to both of whom sincere thanks are due. Games and gramophone records are always in large demand, and the provision of a full-sized billiard table would be invaluable, and bring the Sanatorium to the level of other institutions of similar size. Whist drives are held frequently, and cinema shows weekly in the winter months. Concerts are arranged for during the winter, but owing to the distance and the difficulties of transport they are somewhat limited.

Results.—In the absence of any specific cure for tuberculosis the value of sanatorium treatment in active pulmonary tuberculosis is very great. The immediate results of the treatment of 258 cases shows that 196 were decidedly improved in health and 88 of these fit for their previous work. In the absence of sanatorium treatment doubtless many of these would have become progressively worse from the commencement of illness. It cannot be denied that it is certain that a number of these will retrogress on their return home and the disease probably terminate fatally in the course of the next three to five years, but this cannot be put forward fairly as evidence of the failure of treatment.

The trend of tuberculosis opinion now appears to indicate that the large proportion of cases of active pulmonary tuberculosis occurring at the ages of greatest incidence (25–35 years) are due to the re-awakening of an infection with the tubercle bacillus incurred in the early years of life, the recrudescence of activity being due to a lowering of ‘resistance,’ secondary to bad environmental conditions—overwork, overcrowding, and underfeeding, alcoholism, etc.

Amongst the working classes by far the greater number of cases return to precisely the same conditions under which the disease only comparatively recently was reactivated, with the almost inevitable result that the patient sooner or later retrogresses.

The results of treatment of pulmonary tuberculosis amongst the upper and middle classes is so much better than those of the working classes because the post-sanatorium conditions of the former can usually be re-adjusted.

No active tuberculous lesion can be cured by three or four months treatment, and the Sanatorium makes no claim to discharge any patient with active disease as an arrested case after this period. But treatment can and does put the sufferer on the highroad to the recovery of health and full working capacity, but having done this the further responsi-

bility must be shouldered by 'After Care.' As far as possible all patients before discharge are instructed as to the best manner of adjusting their mode of life to their limitations, but there is little doubt that often the advice is wasted; 'after care' must be ensured by means more practical than advice alone can be.

A great number of ex-patients are to be seen walking the streets in an aimless fashion, unable to resume their ordinary and usually arduous occupations, but perfectly fit to undertake some light and productive work under good conditions. This purposeless life, which compels a class of man usually without hobbies of any sort either to idle at home or hang about outside, is a large factor in the production of recrudescences.

The establishment of Work Centres undoubtedly would go far towards tiding over safely for the ex-sanatorium patient the two years after treatment during which relapses are most common, and if associated with an efficient 'after care' policy on a national basis would certainly improve the results of treatment. Work Centres would probably be run at a loss, but the money would be well invested.

56 of the 258 definite cases were found to give histories of pleurisy prior to twelve months before the onset of symptoms of the illness for which they were admitted; five of these were cases of pleurisy with effusion. The effect of this is that 21·7 per cent. of the cases showed evidence of active tuberculous infection at least twelve months before the onset of symptoms of the pulmonary condition. It would seem to follow that earlier diagnosis would be obtained by the notification of all cases of definite pleurisy which could not be attributed to some condition other than tubercle. The cases could then be kept under periodic observation by the tuberculosis officer. Every case of tuberculous inflammation of the pleura with effusion of fluid should receive sanatorium treatment.

The relations between the Tuberculosis Medical Officers and the Sanatorium continue to be most cordial.

Reports with a recommendation on each patient are sent monthly to the Officer concerned, and on discharge a special report is sent giving essential details and condition on discharge.

In no case has any recommendation as to treatment been questioned or refused.

It is very pleasing to be able to acknowledge the interest and consideration which individual members of the Sanatorium Sub-Committee have invariably shown in the affairs of the patients and staff and in the general welfare of the Institution.

The general tone of the Institution and the discipline of the patients has been very satisfactory.

I am much indebted to the Matron for the able way in which she has overcome the difficulties of administration and maintenance of staff, rendered the more formidable by the extreme isolation of the Institution ; and to you, Sir, for your advice and aid in my many requests.

CECIL G. R. GOODWIN,

Medical Superintendent

Barrasford Sanatorium,

31st August, 1922.

REPORTS OF THE
VETERINARY OFFICER AND INSPECTOR
OF PROVISIONS, AND OF THE
INSPECTOR UNDER THE FOOD AND DRUGS
ACTS (SENIOR SANITARY INSPECTOR).

V.—FOOD.

BOVINE TUBERCULOSIS.
INSPECTION OF MEAT AND PROVISIONS.
INSPECTION OF FOOD AND DRUGS.

BOVINE TUBERCULOSIS, AND THE INSPECTION OF MEAT AND PROVISIONS AND FOOD AND DRUGS.

TUBERCULOUS MILK, 1921.

9 samples were reported to be tuberculous during the year. 4 of these were from farms in Northumberland, 2 in Cumberland, 1 in Dumfriesshire, and 2 in Westmorland (same farm).

In 3 instances the tuberculin test was applied to the cows, with the result that in 2 cases 1 cow in each herd reacted. In the third case the veterinary certificate did not state the number of reactions. In all the affected animals were disposed of.

In 3 other cases clinical examination revealed diseased cows, which were promptly isolated.

1 herd (in Northumberland) on clinical examination was found to contain 4 diseased animals. These were taken out, but a check sample was found positive, and a further examination showed another cow affected. A second check was negative, as were other samples taken later.

The remaining 2 samples illustrate the difficulty of the tuberculous milk question. The first sample was obtained at the premises of a large dealer. On the Bacteriologist's report being received, inquiry showed that this sample had been taken from mixed milks, the probability being that 3 different farms were implicated. Accordingly, the milks from these farms were examined, and 1 was reported tuberculous. This herd was tuberculin tested, 1 cow reacting.

INSPECTION OF MEAT AND PROVISIONS.

Report of the
Veterinary Officer, Inspector of Meat, etc.

TO THE MEDICAL OFFICER OF HEALTH.

SIR,

I have pleasure in submitting herewith Report containing statistics for the year ended December 31st, 1921.

DISEASES OF ANIMALS ACTS, 1894-1914.

During the year, several outbreaks of contagious animal diseases—not affecting the meat or milk supply—have occurred within the City.

**THE DAIRIES, COWSHEDS, AND MILK SHOPS ORDERS,
1885-1899.**

Within the City, there are 24 cowkeepers who occupy 38 cowsheds on 26 premises, and possess a total of 575 milch-cows. During the year 144 visits have been made to the cowsheds and dairies for the purpose of inspecting the buildings, etc., as to defects, sanitation and general cleanliness, etc. On several occasions it was found necessary to draw the attention of occupiers as to the cleansing of cowsheds and the exercise of greater precaution against the contamination of the milk by excremental or other foreign matter. In the east end of the City one of the older cowsheds has during the year been remodelled and brought up to

a more satisfactory condition regarding light, ventilation and drainage.

One regrets to have to again report that, owing to overcrowding of work and the pressing need for qualified veterinary assistance, it has not been found possible to devote more time to the examination of dairy cows as to diseases of the udder and particularly tuberculosis. Needless to add, such diseases are known to be a real menace to the health of the people, particularly that of young children. Of all food-stuffs, milk, in the matter of inspection at the source of production, is perhaps the most important and at the same time one of the most neglected. When one takes into account the large number of cows found on slaughter (meat inspection) affected with advanced tuberculosis, including many cases presenting evidence of the disease within the udder, one is convinced that not until the supervision of milk intended for human consumption is universally applied and includes a regular and systematic inspection of the animals producing such milk will much of the suffering and many deaths occasioned by tuberculosis be prevented. Perhaps it is not sufficiently well known that a large percentage of children who are diseased are suffering from no other than "Bovine Tuberculosis." Year by year enormous sums of money are contributed and much time and energy spent for the purpose of improving the methods of treatment against the disease. Much valuable work has already been done and much remains to be done in this direction; nevertheless, it is unfortunate that many authorities responsible for the control and prevention of tuberculosis pay little or no attention to the source of the disease and thus fail to observe one of the most vital principles of preventive medicine.

ANIMALS SLAUGHTERED FOR FOOD.

During the year 1921, 129,862 animals were slaughtered within the City, as compared with 101,344 slaughtered the year previous. The following table illustrates the number of animals slaughtered within the City during the past five years:—

TABLE NO. 1.

ANIMALS SLAUGHTERED ON LICENSED PREMISES WITHIN THE CITY.

YEAR 1921.				1920.	1919.	1918.	1917.	
Horses	1131	456	674	714	487	
Cows	654	19,977	25,151	18,379	26,333	
Heifers	...	...	8,675			
Bulls	...	...	711			
Bullocks	...	...	5,700			
Calves	3,221	2,347	3,561	2,412	1,989	
Tups	1,037	61,024	75,483	100,488	112,417	
Ewes	...	...	16,083			
Other Sheep	...	...	46,392			
Lambs	...	...	28,439			
Boars	136	17,540	14,595	9,735	15,669	
Sows	...	...	797			
Other Pigs	...	...	16,886			
Total Animals ...				129,862	101,344	119,464	131,728	156,895

THE INSPECTION OF MEAT, PROVISIONS, FISH, FRUIT, ETC.

During the year 1921, a total of $199\frac{1}{4}$ animal carcasses, together with 4 tons, 2 cwts., 2 qrs., 1 lb. of meat were condemned within the City and destroyed as being unfit for human consumption, as compared with 1,229 animal carcasses and 50 tons, 19 cwts., 5 lbs. of meat condemned and destroyed the previous year.

Of the $199\frac{1}{4}$ carcasses, 78 (71 carcasses and 28 quarters) were condemned on account of tuberculosis, as compared with $187\frac{1}{4}$ (177 carcasses and 41 quarters) the year previous.

TABLE NO. 2.

CATTLE, CALVES, AND PIGS SLAUGHTERED WITHIN THE CITY (See also Table No. 1).	Number of Animals found diseased, unsound, or otherwise unfit for human consumption.		Number of Animals found Tuberculous.		Animal Carcasses (including organs) wholly or partly condemned for any cause.	Bovine Animals Slaughtered (excluding Calves).					
	Whole Carcasses Condemned.	Parts or Organs Condemned.	Whole Carcasses Condemned.	Parts or Organs Condemned.		Tuberculous. *					
						Year 1921.					
						Of Each Sex Slaughtered.		Of the Total Slaughtered.			
						Wholly or Partly Condemned.	Parts or Organs Condemned.	Wholly or Partly Condemned.	Entire Carcasses Condemned.	Wholly or Partly Condemned.	Entire Carcasses Condemned.
Year 1921.											
Cows	...	654	19	16	18	11	82·85 %	4·43 %	2·75 %	·184 %	·114 %
Heifers	...	8,675	34	40	33	29	83·78 %	·714 %	·384 %		
Bulls	...	711	3	4	3	1	57·14 %	·562 %	·421 %	·590 %	·336 %
Bullocks	...	5,700	19	25	17	10	61·36 %	·473 %	·298 %		
Totals...		15,740	75	85	71	51	76·25 %	...	...	·775 %	·451 %
Calves	...	3,221	9	...	4	...	44·44 %	·124 %	...	...	...
Pigs	...	17,819	35	...	6	...	17·14 %	·033 %	...	...	...
Total Slaughtered :— 36,780								% Tuberculous ·358.			

* The figures representing the number of animals found tuberculous on slaughter do not necessarily indicate the total number of animals affected with the disease, because under the present slaughter-house system it is impossible to guarantee that all those slaughtered are subjected to inspection.

TABLE NO. 3.

CARCASSES OF BEEF CONDEMNED WITHIN THE CITY DURING THE PAST TWELVE YEARS.

Total Condemned.		Numbers Condemned on account of Tuberculosis.	Percentage Tuberculous.
Year.	Carcasses.	Carcasses.	Per Cent.
1910	116	110	94·82
1911	88	79	89·77
1912	79	73	92·40
1913	92	89	96·73
1914	83	70	84·43
1915	96	88	91·66
1916	109	103	94·49
1917	98	92	93·87
1918	230	182	79·13
1919	306	267	73·0
1920	198	171	86·36
1921	90	78	86·66

NOTE.—The above refers to whole carcasses and quarters, but does not indicate the total animals found tuberculous, and therefore does not include those carcasses in which only the organs or parts were found diseased and condemned. See Table 2.

TABLE NO. 4.

NUMBER OF VISITS AND INSPECTIONS OF PREMISES DURING THE YEAR 1921.

Central Markets.				Meat Shops.		Fish Shops.		Provision Shops.		Fruit Shops.		Quay-side.	
Slaughter Houses.		Meat and Provisions.		Fruit and Vegetables.		Fish Shops.		Wholesale.		Retail.		Wharves and Vessels.	
Meat and Provisions.		Fruit and Vegetables.		Fish Shops.		Wholesale.		Retail.		Wholesale.		Cold Stores.	
Fruit and Vegetables.		Fish Shops.		Wholesale.		Retail.		Wholesale.		Retail.		Goods Stations.	
9,911	700	497	493	3,266	991	78	8	190	39	137	26	410	19
													13

IMPORTED FOODSTUFFS.

During the year 1921, some 189 vessels carrying foodstuffs from Denmark, Holland, Canada, Australia, and Norway arrived at the Quayside, as compared with 61 vessels during the year 1920. 410 visits were made to the wharves and vessels alongside, 2,298 packages containing meat, etc., being opened

and examined. Regarding these visits, 6 were in response to official notices received from the Customs House concerning foodstuffs detained for inspection and certification.

Imported meat arriving within the City by rail is subjected to inspection and supervision within the wholesale shops and cold storage depots.

FOREIGN MEAT, ETC., ARRIVING BY VESSEL.

CASKS.	CARCASSES, ETC.
17 Offal.	266 Veal.
1 Horse Flesh + 8 cwts.	30 Lamb.
20 Sausage.	24 Mutton.
2,751 Fore Quarters Beef.	1,800 Pork.
1,097 Hind Quarters Beef.	80 Sides Beef.
1 Pigs Cheeks.	
3,931 „ Feet.	OTHER GOODS.
1,069 „ Maws.	82 Cases Hams.
21 „ Tongues.	1,075 „ Lunch Tongues.
2,098 „ Heads.	7,903 „ Bacon.
6 „ Plucks	1,625 „ Bacon and Hams.
1 Casings.	1,700 „ Tinned Meat.

TABLE NO. 5.

NUMBER OF VESSELS, AND ORIGIN, ARRIVING WITH FOOD.

Denmark.	Holland.	Canada.	Australia.	Norway.
134	37	16	1	1

TABLE NO. 6.

FOODSTUFFS CONDEMNED AS UNFIT FOR HUMAN CONSUMPTION, BUT PERMITTED TO BE USED FOR ANIMAL FEEDING, AND FOODSTUFFS UNMARKETABLE, BUT ALLOWED TO BE USED FOR MANUFACTURING PURPOSES.

8 tons Potatoes. 224 lbs. Chocolates.	Animal Feeding.
558 Tins Milk.	Manufacturing Purposes.

The following foodstuffs, after condemnation, were destroyed by Orders of Magistrates:—Two cwts of Chocolates, and 175 cases of Rabbits.

The total weight of meat and other foodstuffs condemned during the year was 51 tons, 9 cwts, 5 stones, 9 lbs. comprising:—

Beef, Mutton, Veal, Pork, 28 tons, 16 cwts., 1 st., 6 lbs.
Offal, Provisions, etc., 22 „ 13 „ 4 „ 3 „

Note.—The above weights are approximate only.

TABLE NO. 7. CARCASSES, ETC., DESTROYED AS BEING UNFIT FOR HUMAN CONSUMPTION DURING THE YEAR, 1921.

	Carcasses.				Lungs.		Hearts		Kidneys	Livers.			Tails	Heads.				Plucks.			Tongues.		Ox Tripe.	Pigs' Maws.	Horse Flesh.
	Beef.	Veal.	Mutton	Pork.	Sets Ox.	Sets Sheep.	Ox.	Sheep.	Ox.	Ox.	Calf.	Pig.	Ox.	Calf.	Sheep.	Pig.	Calf.	Sheep.	Pig.	Ox.	Pig.				
Tuberculosis	71 +	4	...	6	47	...	8	...	...	...	20	...	...	3	...	...	...	...	...	2	...	...	...	...
Scrapie and Emaciation	...	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pyrexia	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Septicæmia	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pleurisy	...	...	...	1	11	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Pleurisy and Peritonitis	1 +	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Peritonitis	4 qrs.	...	...	...	1	...	...	...	...	2	...	...	1	...	...	...	...	...	...	...	...	...	...	...
Pericarditis	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Septic Pericarditis	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Septic Pericarditis	4 qrs.	...	...	...	1	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cirrhosis	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Abscesses	...	...	2	...	4	4	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Dropsy and Emaciation	4 qrs.	1	5	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Congestion	1	...	1	4	2	...	1	...	3	1	...	...	1	2	...	...	...	...	...	...	...	...	...	...
Imperfectly Bled	...	1	8	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Immaturity	...	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Traumatism	1 qr. + 121 lbs	...	109 lbs.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Decomposition	1 + 20 qrs. + 8,445 lbs.	1	47 + 53 lbs.	20 + 513 lbs.	6	...	70 + 340 lbs.	48 + 54 lbs.	...	40 + 234 lbs.	8	8	79 + 408 lbs.	3	45	9 cwt. + 1	10	...	...	4	20	4,369 lbs.	72	8 cwt.

TABLE No. 8.

POULTRY, GAME, FISH, FRUIT AND PROVISIONS, ETC., DESTROYED AS BEING UNFIT FOR HUMAN CONSUMPTION

DURING THE YEAR 1921.

Cause of Unfitness.	Poultry and Game.	Fish.	Fruit and Vegetables.	Provisions.	TINNED.	Tins
Unsound or Unwholesome.	23 Ducks 37 Chickens 3 Turkeys 7,184 Rabbits 7 Hares 9 Fowls 9 Ducklings 12 Hens 32 Black Game 3 Ptarmigan 400 Black and Grey Birds	84 lbs. Cod 112 " Fish (Mixed) 2,012 " Herring 140 " Haddocks 3,136 " Halibut 224 " Sprats 171½ " Findon Haddock	1 cwt. Potatoes 3 tons 15 cwt. Celery 140 lbs., 87 boxes and 14 baskets Tomatoes 546 lbs. Pears	3,429 lbs. Bacon and Ham 56,280 Eggs 224 lbs. Yeast Confectionery. 224 lbs. Chocolates	Salmon Crab Rabbit Lobster Tomatoes Beans Sardines Apples Pine Apple Pears Peaches Apricots Paste Milk Mutton Corned Beef Ox Tongue PACKETS. Barley Kernels Sponge Cake Flour Baking Powder Egg Powder	42 3 2 7 681 1 7 84 13 233 35 11 1 881 lbs. 4,514 1,993½ 48 Pkts. 4 10 3 2

SLAUGHTER HOUSES.

During the year under report there were 102 separate premises licensed for slaughtering purposes, 2 of which are used for the purpose of horse slaughtering. The latter are situated in Dispensary Lane and Byker Hill respectively.

I have the honour to be, Sir,

Your obedient Servant,

THOMAS PARKER, F.R.C.V.S.,

*Veterinary Officer and
Inspector of Meat, Provisions, etc.*

Town Hall,

Newcastle-upon-Tyne.

4th July, 1922.

FOOD AND DRUGS ADULTERATION, Etc.

Total Samples.—The number of **samples** (of all kinds) obtained by the **Senior Sanitary Inspector** for analysis during the year was 1,261, against 1,263 in 1920. For details see table on page 158A.

Of this total, only 599 were submitted for analysis to the Public Analyst, the remainder being milk samples which, on being tested in the offices of the Health Department, appeared to be genuine.

Informal Samples.—181 samples (included in the foregoing total) were collected “informally,” chiefly through the agency of hired persons.

Milk Samples.—The number of milk samples taken was 1,068; 79 of these were certified to be below the minimal limits fixed by the “Sale of Milk Regulations, 1901.”

Samples Not Genuine, etc.—The percentage of samples not genuine to the total number taken is 7·45 (compared with 7·60 for the previous year), and the percentage of non-genuine milk samples to the total number of milk samples obtained is 7·40 (as against 8·74 in 1920).

The total number of samples taken is at the rate of 4·5 per 1,000 of the population of the City for the year 1921.

Milk Adulteration.—Of the 79 milk samples not genuine, 15 were deficient in non-fatty solids, 57 in milk-fat, and 7 in both.

The percentage of deficiency in fat varied from 1·6 to 46·6 (the average being 12·25), and in solids not fat from 0·4 to 11·1 (average 3·28).

Margarine Act, 1887.—24 samples of margarine (included in the foregoing total of 1,261) have been purchased and analysed. These were found to be genuine, except that all but one contained boric acid (as below).

Margarine Warehouses.—90 visits have been made to the margarine warehouses. No contravention of the law as to marking of packages was found.

Preservatives in Food.—Of the total number of samples taken for analysis (1,261), the following were certified to contain preservative, in the form of boric acid:—Margarine (23), Butter (1), Slab Cake (5), Sponge Cake (1), Egg Yolk (1), and Ice Cream (1).

In the case of the margarine and butter, the quantity was within the limit allowed. The slab cake, sponge cake and egg yolk (used in the manufacture of the latter), shewed an undesirable quantity of preservative, and the facts were duly reported to the Ministry of Health, at whose request this series of samples was taken for special examination as to the presence of boric acid due to the use of preserved imported liquid eggs. In the ice cream the amount of boric acid was only about 0·01 per cent.

Action taken with respect to Offences other than Adulteration.

Offence.	No. of Cases.	Proceedings taken, etc.
<i>Sale of Food and Drugs Act, 1875, Sec. 17:—</i> Refusal to sell a sample of milk to the Inspector.	2	In 1 case summonses were issued against the vendor and his servant, the vendor being fined £2, and the case against the servant being dismissed. In the other instance the offender was summoned and fined £10.
<i>Sale of Food and Drugs Act, 1899, Sec. 16.</i> Obstructing the Inspector in the course of his duties in the foregoing case.	1	Offender summoned and fined £20.
Assaulting the Inspector as above.	1	Offender summoned and ordered to pay costs.
<i>Sale of Food and Drugs Act, 1899, Sec. 9.</i> Selling milk from hand-cans upon which the name and address of the vendor were not inscribed.	2	Vendors cautioned.
<i>Sale of Food and Drugs Act, 1899, Sec. 11.</i> Selling skimmed milk from a hand-can not properly labelled "skimmed milk."	1	Vendor cautioned.
<i>Margarine Act, 1887, Sec. 6.</i> Margarine delivered to purchaser in paper not marked "Margarine."	4	Vendors summoned and fined £1 in each of 3 cases, the other being dismissed on payment of costs.
Margarine exposed for sale not labelled.	1	Vendor summoned and fined £1.
Total ...	12	Amount of Penalties, £36.

See also * on page 158A.

Samples taken for Analysis during the Year 1921.

ARTICLE.	No. of Samples obtained.			Result of Analysis.		Action Taken.				REMARKS.
	Formal.	Informal.	Total.	Genuine.	Not Genuine.	Prosecutions.	Convictions.	Cases Dismissed.	Cases Withdrawn.	
New Milk	1,057	11	1,068	989	79	30	20	10	...	In 10 cases no proceedings were taken, these consisting of informal samples, "appeal to cow" samples, etc., and in the remaining 39 (of the 79 not genuine) the vendors were cautioned by order of the Sanitary Committee.
Skimmed Milk	3	...	3	3	...	...	...	...	...	All but one contained boric acid, within the limit allowed.
Margarine	6	18	24	24	...	...	...	...	...	1 sample contained boric acid, within the limit allowed.
Butter... ..	1	42	43	43	...	...	...	...	...	The sample "not genuine" (informal) contained 30% chicory; a subsequent (formal) sample proved to be genuine.
Coffee... ..	1	1	2	1	1	...	...	...	...	The sample "not genuine" (informal) contained 61·8% of common salt; a subsequent (formal) sample proved to be genuine.
Cocoa ... ..	...	1	1	1	...	...	...	...	...	The 2 samples "not genuine" (informal) contained 20% and 10% respectively of wheat starch. Formal samples not procurable, the vendor of the first subsequently giving up business, whilst in the case of the second, it was stated that no loose mustard was in stock.
Tea ... ..	...	1	1	1	...	...	...	...	...
Sugar ... ..	...	1	1	1	...	...	...	...	...
Flour ... ..	...	1	1	1	...	...	...	...	...
Egg Powder... ..	...	1	1	1	...	...	...	...	...
Baking Powder ... ..	...	8	8	8	...	...	...	...	...
Pepper	1	17	18	17	1	...	...	...	...
Mustard ... ..	...	9	9	7	2	...	...	...	...
Vinegar ... ..	...	1	1	1	...	...	...	...	...
Custard Powder ... ..	...	2	2	2	...	...	...	...	...
Corn Flour ... ..	...	1	1	1	...	...	...	...	...
Semolina ... ..	...	1	1	1	...	...	...	...	...
Rice ... ..	...	1	1	1	...	...	...	...	...
Ground Rice... ..	...	6	6	6	...	...	...	...	...
Jams and Jellies	4	4	8	7	1	...	...	...	...	The sample "not genuine" was one of Apricot Jam containing tin compounds (0·55 grain of tin per lb.). The vendor and manufacturers were duly communicated with.
Arrowroot ... ..	...	1	1	1	...	...	...	...	...
Sago ... ..	...	1	1	1	...	...	...	...	...
Barley Powder ... ..	...	1	1	1	...	...	...	...	...
Syrup ... ..	...	1	1	1	...	...	...	...	...
Slab Cake ... ..	...	6	6	1	5	...	...	...	...	The samples "not genuine" contained boric acid ranging in quantity from 0·09% to 0·22%. The results of the analyses were duly communicated to the Ministry of Health, at whose request the samples were taken for analysis as to the presence of boric acid due to the use of preserved imported liquid eggs.
Sponge Cake and Sponge "Fingers", ... ..	...	6	6	5	1	...	...	...	...	The sample "not genuine" (sponge cake) contained 23·1 grains of boric acid per lb. Facts reported to Ministry of Health, at whose request the samples were taken.
Egg Yolk and White of Egg (used in the manufacture of Sponge Cake, as above)	...	2	2	1	1	...	...	...	...	The sample "not genuine" (egg yolk) contained 119 grains of boric acid per lb. Facts reported to Ministry of Health, at whose request this series of samples was taken.
Ice Cream	1	3	4	4	...	...	...	...	...	1 contained about 0·01% of boric acid.
Ice Cream Wafers (& Cups)	...	3	3	3	...	...	...	...	...
Cream of Tartar ... ..	...	5	5	5	...	...	...	...	...
Tartaric Acid ... ..	...	3	3	3	...	...	...	...	...
Gregory's Powder ... ..	...	3	3	3	...	...	...	...	...
Tincture of Rhubarb ... ..	...	3	3	3	...	...	...	...	...
Syrup of Rhubarb ... ..	...	3	3	3	...	...	...	...	...
Camphorated Oil ... ..	...	4	4	4	...	...	...	...	...
Paregoric ... ..	...	2	2	2	...	...	...	...	...
White Precipitate Ointment	...	3	3	3	...	...	...	...	...
Glycerine ... ..	...	2	2	2	...	...	...	...	...	The sample "not genuine" was 46·9 degrees under proof. The vendor was summoned and fined £5.
Whisky	3	...	3	2	1	1	1	...	...	The samples "not genuine" were 43·0 and 46·4 degrees under proof respectively, the proceedings taken having regard to label on vessel and notice in bar, as to dilution.
Rum	3	...	3	1	2	...	...	...	...
TOTALS	1,080	181	1,261	1,167	94	31	21	10	...	Amount of penalties obtained—£58 0s. 0d.*

*Total penalties, including those in respect of "offences other than adulteration" etc. (£36 See separate table, page 158) £94.

Included in the above are—

29 "Appeal to Cow" samples taken at farm or byre, after seeing the cows milked; 21 of these proved to be genuine and 8 deficient.

69 samples taken "in course of delivery" (at railway stations, etc.)

**The Public Health (Milk and Cream) Regulations,
1912 and 1917.**

MINISTRY OF HEALTH TABLE.

1.—Milk and Cream not sold as Preserved Cream.

	(a) Number of samples examined for the presence of a preservative.	(b) Number in which a preservative was reported to be present.
Milk ...	409	None.
Cream ...	— (No Samples.)	—

2.—Cream sold as Preserved Cream. No samples.

BORIC ACID IN SPONGE CAKE.

At the request of the Ministry of Health, 6 samples of sponge cake, or sponge finger, were obtained for examination for boric acid. One of these was found to contain 0·33 per cent. of that preservative (23·1 grains per lb.). It was ascertained that this particular sample was manufactured, among other ingredients, from liquid egg, and samples of white of egg and yolk of egg respectively were obtained. The latter was reported by the Analyst to contain 1·7 per cent. of boric acid, equivalent to 119 grains per lb. The facts were reported to the Ministry of Health. From the letter of the Ministry it would appear that samples of similar articles taken in other parts of the country have been found to contain large amounts of boric acid, and it is stated that it may become necessary to consider whether regulations should not be made prohibiting altogether the importation of boracised liquid egg, which is probably the origin of the high percentage of the preservative.*

*While this report was in the press, information was received that an agreement had been arrived at between the Ministry and the Bakery Allied Traders' Association that liquid egg should not be used in the manufacture of certain articles of food commonly consumed by young children.

BACTERIAL IMPURITY OF MILK AND WATER.

Milk.—165 samples were obtained and examined by the Bacteriologist for presence of tubercle bacilli, which were found in 9, or 5·5 per cent.

Action taken is described on page 147.

165 samples were obtained and submitted for examination for presence of evidence of excremental pollution, which was found to an undesirable degree in 99, or 60·0 per cent. The vendors and producers were communicated with and warned, further samples being taken in each case. 16 samples were examined chemically for actual sedimental content by the Public Analyst, whose certificate shewed that none sensibly exceeded the limit for “clean” milk.

Cleanliness of Milk Churns.—In November, owing to a strong complaint from the Medical Officer of Health of Penrith, that empty milk churns were being returned from Newcastle in a dirty condition, a circular letter was issued by the Medical Officer of Health to all milk producers in the City pointing out the necessity of rinsing empty milk churns and other vessels before their despatch by rail. The Medical Officers of Health of the adjoining counties were also communicated with and asked to co-operate. The results of this action can scarcely as yet be estimated.

Water.—176 samples were collected from all parts of the City and at the water works, and examined for the presence of *bacillus coli*.

The results are described on page 109.

CONDITION OF PREMISES ON WHICH FOOD IS PREPARED.

Bakehouses.—The number of bakehouses in the City is 237, comprising 28 factories and 209 workshops.

The inspection of wholesale (or factory) bakehouses has formerly been carried out by H.M. Inspectors of Factories, but, by the Ministry of Health (Factories & Workshops Transfer

of Powers) Order, made during the year, this duty is now placed upon Local Authorities, and the necessary inspection will devolve upon the officers of the Health Department.

The retail (or workshop) bakehouses continue to be systematically inspected, and are usually found to be kept in satisfactory sanitary order. Special attention is given to the matters of general cleanliness and limewashing twice a year as required by law.

The "domestic" bakehouses are found, as a rule, to be maintained in good sanitary condition, but, as stated in previous reports, bakehouses of this class are not considered desirable from a sanitary point of view, the baking having to be carried out more or less in conjunction with the dwelling; their use is therefore discouraged as far as possible. In this connection, the local provision that any article of food must not be stored, prepared, or sold in any room used as a sleeping apartment is of considerable utility.

Restaurant Kitchens.—There are in the City 111 kitchens of restaurants, cafés, dining rooms, etc. The inspection of these has been continued, attention being given to limewashing, general cleanliness, and other sanitary requirements.

Fried Fish Shops.—The number of these shops on the register at the end of 1921 was 127, as against 119 in the previous year. This business being scheduled as an "offensive trade," the approval of the local authority must be obtained before it can be established, and closer supervision is afforded over premises already existing. As now carried on, with more up-to-date appliances in many instances, and a generally satisfactory observance of sanitary requirements, little or no fault has had to be found with the conduct of this trade during the year.

Ice Creameries (including Retail Shops).—The number of these places shews an increase of 20 during the year, viz: from 127 to 147. In view of the special liability to contamination of this commodity, particular attention is paid to

premises where the manufacture or sale is carried on. Although in some instances not all that can be desired, the general sanitary condition of these places is found to be fairly satisfactory.

General Shops from which Milk is sold.—There were 311 such shops on the register at the end of the year (an increase of 12 on the previous year). The unsuitability of many of the small “general” shops from which milk is sold has been commented upon previously. These remarks still apply, and until this important article of food can be stored and sold under conditions which more adequately safeguard it against the danger of contamination, matters cannot be said to be quite satisfactory. In the inspection of these premises from time to time, attention is given to place of storage, covering of vessels, and other essentials.

(Signed) Wm. HUDSPETH,

Inspector under the Sale of Food and Drugs Acts, &c.

REPORT OF THE
SENIOR SANITARY INSPECTOR.

VI.—THE HOME AND THE
WORKSHOP.

NUISANCES, HOUSING, FACTORIES AND
WORKSHOPS, Etc.

**NUISANCES, HOUSING,
 FACTORIES AND WORKSHOPS,
 ETC.**

*The following is the
 Report of the Senior Sanitary Inspector.*

TO THE MEDICAL OFFICER OF HEALTH.

SIR,

I beg to present to you my fourteenth report upon the work done in my section of the Health Department, viz., that for the year ended 31st December, 1921, which, together with the section on Food and Drugs Adulteration, etc., is as follows :—

NUISANCE ABATEMENT.

With reference to the comments made in previous reports, there are indications that economic conditions are now becoming more normal than during the period of the War and succeeding years, resulting already in some reduction in the costs of labour and materials. Although these items are still high, there appears to be a prospect of further gradual diminution in prices, which will no doubt be reflected in the maintenance of property in better condition than has obtained during recent years, and, speaking generally, it is found that arrears of repairs are being gradually overtaken.

The questions of overcrowding and shortage of housing accommodation are still most acute, and the remarks made in the previous report apply with equal force to the conditions at present existing. With respect to overcrowding, this was made the subject of a special report to the Sanitary Committee, who have the matter under consideration.

Under the Increase of Rent and Mortgage Interest (Restrictions) Act, 1920, 27 applications have been received. In 16 instances certificates were granted to tenants, and in the remainder either requisite repairs were carried out or the conditions were not such as to warrant the issue of a certificate.

The following are the numbers of notices and letters issued during the year:—

Total number of notices served—			
Informal			7,214
Statutory			256
			—— 7,470
Number of letters sent	...	...	2,289
Number of circular letters sent	...	...	1,549
Total	...	...	<u>11,308</u>

Magisterial Proceedings.—As shewn in appended table, in only 4 instances was it found necessary to resort to legal proceedings in order to secure the abatement of nuisances, etc. In other cases the work required was carried out without having to apply to the magistrates.

THEATRES, MUSIC HALLS, AND OTHER PLACES OF PUBLIC ENTERTAINMENT.

In accordance with the Ministry of Health's circular letter to Local Authorities, the above have been systematically inspected and reported upon in detail to the Sanitary Committee and the Licensing Authorities. Of a total of 84 premises, 42 were found upon the original inspection to be in good sanitary order. Of the remaining 42, which were not considered entirely satisfactory, 37 were afterwards brought into conformity with the requirements of the Health Department. Certificates were granted accordingly to the proprietors for production to the Licensing Authorities on application for a renewal of the licences.

CONVERSION OF DRY CLOSETS.

150 privies have been removed and replaced by water-closets. Of this total, 58 were pail closets, 4 midden privies,

and 88 "cell" privies (in the districts of Walker and Benwell,. In addition, 42 "dry" ashpits have been removed and replaced by portable galvanised iron dustbins. In this connection, 140 free dustbins have been supplied during the year.

RETURN OF "DRY" CLOSETS IN THE VARIOUS WARDS OF THE CITY.

WARDS.		Total No. Privies.	Pail Closets.	Cell Privies.	Privies and Ashpits.	
					Privies.	Ashpits.
St. Nicholas'	...	7	7	...	...	...
St. Thomas' ...	...	24	24	...	...	...
St. John's ...	...	57	57	...	...	...
Stephenson ...	...	16	16	...	...	...
Armstrong ...	...	7	7	...	...	...
Elswick ...	...	66	66	...	...	...
Westgate ...	...	11	11	...	...	...
Arthur's Hill	...	...	...	...	...	...
Benwell ...	...	115	...	112	3	2
Fenham ...	...	66	12	22	32	23
All Saints' ...	...	172	170	...	2	1
St. Andrew's	...	53	53	...	...	...
Jesmond ...	...	5	...	...	5	5
Dene ...	...	1	...	...	1	1
Heaton ...	...	32	25	...	7	7
Byker ...	...	900	899	...	1	1
St. Lawrence	...	1,590	1,587	...	3	3
St. Anthony's	...	594	576	...	18	17
Walker ...	...	964	...	915	49	33
Total in City	...	4,680	3,510	1,049	121	93

ATMOSPHERIC POLLUTION.

Smoke Inspections.—The following are particulars as to smoke observations made :—

No. of chimneys watched.	No. of observations made.	No. of chimneys from which black smoke issued in such quantity as to be a nuisance for periods of over 5 minutes in the aggregate during one hour.	No. of times when smoke issued so as to be a nuisance.	No. of notices served for the abatement of smoke nuisances.		No. of Prosecu- tions.
				Informal.	Statutory	
91	781	15	16	12	3	...

Atmospheric Pollution Records.—An observation station, under the immediate control of the City Analyst, is placed on an open site in Davison's yard, City Road, in connection with similar stations in other towns, the monthly results from all of which are compared and published by the National Committee for the Investigation of Atmospheric Pollution.

The monthly readings from the Newcastle station are appended :—

ATMOSPHERIC POLLUTION.—NEWCASTLE RECORDS, 1921.

MONTH.	RAINFALL. (Millimetres.)	METRIC TONS OF DEPOSIT PER SQUARE KILOMETRE PER MONTH.								
		Insoluble Matter.			Soluble Matter.		TOTAL SOLIDS.	Included in Soluble Matter.		
		Tar.	Other Carbonaceous.	Ash.	Loss on Ignition.	Ash.		Sulphate as SO ₃	Chlorine as Cl.	Ammonia as NH ₃
January ...	107·6	0·25	0·58	3·88	1·72	3·02	11·45	0·85	0·92	0·05
February ...	3·1	0·25	2·27	6·61	0·52	0·93	10·58	0·52	0·15	0·01
March ...	20·8	0·17	2·88	7·41	0·75	1·62	12·83	0·76	0·35	0·06
April ...	29·8	0·41	4·73	10·28	1·49	2·87	19·78	1·25	0·47	0·02
May ...	37·6	0·26	3·02	7·92	1·50	2·41	15·11	0·97	0·48	0·02
June ...	15·6	0·03	2·93	8·00	1·21	1·71	13·88	0·60	0·38	0·08
July ...	49·3	0·25	4·09	10·70	1·52	2·83	19·39	1·30	0·65	0·21
August ...	133·5	0·30	2·92	6·22	1·33	4·27	15·04	1·83	0·66	0·20
September ...	14·3	0·41	8·21	14·39	1·45	3·00	27·46	1·55	0·24	0·04
October ...	44·1	0·16	4·99	9·50	1·59	2·65	18·89	1·24	0·38	0·11
November ...	60·5	0·06	6·71	8·06	0·97	4·23	20·03	1·62	0·56	0·12
December ...	33·7	0·33	2·89	9·15	1·35	2·36	16·08	1·39	0·39	0·11
TOTAL, 12 months	549·9	2·88	48·22	102·12	15·40	31·90	200·52	13·88	5·63	1·03
Average per month	45·8	0·24	4·2	8·51	1·28	2·66	16·71	1·16	0·47	0·08

An average of 16·71 metric tons of total solids per square kilometre per month is equivalent to 16·1 cwt. per acre per annum, or 513 tons per square mile. With the exception of the year 1918, when there was great restriction upon the use of coal, this is the lowest deposit since the observations were commenced in 1914. The fall in 1916 was equivalent to 694 tons per square mile (the heaviest).

OFFENSIVE TRADES.

The following are the numbers and classes of offensive trades carried on within the City :—

Specified in Section 112, Public Health Act, 1875 Blood Boiler (0), Bone Boilers (4), Fellmonger (0), Soap Boilers (2), Tallow Melter (0), Tripe Boilers, (6).

Declared by Local Authority, confirmed by Local Government Board (in accordance with Section 51, Public Health Acts Amendment Act, 1907). Rag and Bone Dealers (22), Dealers in Hides and Skins (4), Dealer in blood or other putrescible animal products (1), Blood Dryer (0), Fat Melters or Fat Extractors (3), Glue and Size Makers (2), Gut Scraper (1), Fish Friers (127).

As compared with the previous year, this is a decrease of 1 tripe boiler, 3 rag and bone dealers, 1 gut scraper, and 1 glue and size maker, whilst the number of fish friers has been increased by 8.

Close attention continues to be given to these trades which, as a rule, are found to be conducted satisfactorily and without any more nuisance than is inseparable from businesses of this nature.

SUMMARY OF NUISANCES, ETC., FOR THE ABATEMENT OF WHICH NOTICES WERE SERVED DURING 1921.

Foul privies and ashpits (to replace with water-closets)	78
Defective "cell" privies in Walker and Benwell (to replace with water-closets)	20
Foul pail-closets (to replace with water-closets)	202
Foul or defective ashpits not connected with privies (to remove and provide dust bins)	37
Insufficient water-closet or privy accommodation (additional water-closets ordered)	13
Defective or insufficient dust bins	1,104
Defective water-closets	983
Defective pail-closets (to repair, provide new pails, etc.)	246
Defective waste-water closets (to replace with fresh-water closets) ...	11
Water-closets without water supply	166
Choked water-closets (mostly served on tenants)	179
Dirty water-closets (all served on tenants)	143
Carried forward	3,182

SUMMARY OF NUISANCES, ETC., FOR THE ABATEMENT OF WHICH NOTICES
WERE SERVED DURING 1921.—*Continued.*

Brought forward	...	...	...	...	3,182
Dirty privies (all served on tenants)	...	...	...	...	19
Defective drains (to repair, or construct new drains)	...	...	...	...	256
Choked drains, etc.	...	...	...	...	784
Defective or choked sinks, waste pipes, etc.	...	...	...	...	390
Defective or choked soil-pipes, vent shafts, etc.	...	...	...	...	40
Sink waste-pipes not trapped,	...	...	...	...	16
Want of or defective pavement in yards and passages	...	...	...	...	229
Dirty rooms	...	...	...	...	102
Damp rooms	...	...	...	...	180
Overcrowding	...	...	...	...	60
Dirty yards, passages, stairs, etc.	...	...	...	...	269
Animals, pigeons, and fowls improperly kept	...	...	...	...	59
Offensive accumulations	...	...	...	...	153
Accumulations of manure	...	...	...	...	19
Want of or defective manure pits	...	...	...	...	6
Broken roofs and want of or defective or choked spouting	...	...	...	...	1,308
Want of water	...	...	...	...	263
Smoke nuisances	...	...	...	...	15
Want of proper ventilation to rooms (including to floor space), broken window cords in tenements, etc.	...	...	...	...	373
Insufficient means of natural light to rooms	...	...	...	...	1
Structural defects in houses (broken plaster, floors, stairs, etc.)	...	...	...	...	1,489
Dirty cisterns supplying water to sinks, etc.	...	...	...	...	2
Slop water or excreta thrown into privy pails, ash-tubs or dustbins...	...	...	...	...	3
Filth thrown on yards, streets, etc.	...	...	...	...	9
Stable (defective and unsuitable)	...	...	...	...	7
Piggery (defective and unsuitable)	...	...	...	...	1
Food manufactured or stored for sale under improper conditions	...	...	...	...	20
Bakehouses—Dirty, &c.	...	...	...	...	48
„ Premises unsuitable	...	...	...	...	2
Urinals dirty or without water (in public-houses, etc.)	...	...	...	...	7
Ice-Creameries (unsuitable, dirty, etc.)	...	...	...	...	2
Cellar dwellings illegally occupied	...	...	...	...	10
Workshop occupied as a sleeping apartment	...	...	...	...	1
Offensive trade established without permission	...	...	...	...	1
Places occupied as dwellings, unfit for the purpose	...	...	...	...	3
Unclassified minor nuisances	...	...	...	...	73
Total	...	...	...	...	9,402

DEFECTS IN COUNCIL SCHOOLS.

Defective W.Cs.	...	...	...	...	...	...	6
Choked gullies	...	...	...	...	...	...	2
Defective yard pavement	...	...	...	...	...	...	1
Latrines not sufficiently flushed	...	...	...	...	...	...	3
Insufficient dustbins	...	...	...	...	...	...	1
Conveniences not limewashed	...	...	...	...	...	...	2
Total	...	...	...	...	...	...	15

DEFECTS IN THEATRES, MUSIC HALLS AND CINEMAS.

Sanitary Accommodation—							
Insufficient	...	...	...	...	...	...	22
Unsuitable or defective	...	...	...	...	...	...	14
Conveniences dirty	...	...	...	...	...	...	2
Insufficient means of natural light to halls (Cinemas)	...	...	...	...	...	...	15
Want of cleanliness	...	...	...	...	...	...	5
Ventilation of Hall inadequate	...	...	...	...	...	...	3
Dressing Rooms—							
Insufficient ventilation (including broken sash-cords, etc.)	...	...	...	...	...	...	4
No means of natural light	...	...	...	...	...	...	2
Dirty walls	...	...	...	...	...	...	1
Orchestra Room—							
Underground and insufficiently lighted and ventilated	...	...	...	...	...	...	1
Area into which conveniences are lighted and ventilated.	...	...	...	...	...	...	1
very dirty	...	...	...	...	...	...	1
Drains defective	...	...	...	...	...	...	1
							71

DETAILS RELATING TO CERTAIN WORKS CARRIED OUT IN THE ABATEMENT OF
NUISANCES AND TO INSPECTIONS MADE DURING 1921.

Length (in yards) of old drains removed	...	...	...	...	1,639
„ „ new drains constructed	...	...	...	...	1,839
New trapped gullies provided to drains	...	...	...	...	247
Combined privies and ash-pits removed	{ privies	...	...	...	4
	{ ash-pits	...	...	...	3
“Cell” privies removed (in Walker and Benwell)	...	...	...	...	88
Pail-closets removed	...	...	...	...	58
Defective water-closets removed	...	...	...	...	37
Water-closets provided (in place of the foregoing privies and defective water-closets removed, also in 10 cases where the accommodation was previously insufficient)	...	...	...	...	196
Dry ashpits removed and replaced by galvanized iron dustbins	...	...	...	...	42
Dustbins substituted for dry ash-pits where water-closets existed, and provided in cases where privies have been replaced by water-closets	...	...	...	...	†140
No. of drains tested	...	...	...	...	635
No. of tests of above drains made by smoke and water	...	...	...	...	842
No. of inspections from complaints made at office (verbally or by letter)	...	...	...	...	2,335
No. of tenement inspections made	...	...	...	...	16,810
No. of contraventions of Tenement Bye-laws for which notices have been served to obtain remedy	...	...	...	...	\$1,711
Inspections of houses made from complaints received outdoors or nuisances discovered in the districts, including a large number of minor nuisances, such as choked drains and dirty yards, the abatement of which was accomplished at the time of visit, and without legal notice	...	...	...	...	4,375
Inspections to learn if works ordered were in progress	...	...	...	...	12,805
Supervisions of work in progress	...	...	...	...	2,025
Common yards and courts in the worst localities specially visited on Friday afternoons and Saturday mornings to obtain weekly cleansing of same	...	...	...	...	29,988
Inspections after infectious disease	...	...	...	...	1,517
Inspections of milk shops and ice creameries (including retail shops)	...	...	...	...	1,040
„ bakehouses	...	...	...	...	†882
„ offensive trades	...	...	...	...	736
„ wholesale margarine warehouses	...	...	...	...	90
„ as to limewashing of tenements	...	...	...	...	4,961
„ of schools	...	...	...	...	117
„ under Housing, Town Planning, &c., Acts	...	...	...	...	748
Miscellaneous Visits	...	...	...	...	1,517

† Free dust bins given by Corporation in each case.

§ In addition to this number, the District Inspectors have daily had premises cleansed on verbal order.

† Including 484 inspections made under the Factory and Workshop Acts by the Assistant Inspectors of Workshops.

SUMMARY OF LEGAL PROCEEDINGS ORDERED TO BE TAKEN BEFORE THE
MAGISTRATES FOR THE ABATEMENT OF NUISANCES, ETC.,
DURING THE YEAR 1921.

Nature of Complaint.	No. of Cases.	How disposed of.
<i>Public Health Acts :—</i>		
Defective drains.	6	Drains repaired or reconstructed without the summonses being applied for.
Choked drains	2	Drains cleared without the summons being applied for.
Defective roofs and choked or defective spouting, causing dampness	8	In one instance summons issued and afterwards withdrawn on decease of the owner-occupier, (costs paid out of estate). In the remaining cases roofs repaired and spouting cleared or made good without the summonses being applied for.
Accumulation of refuse	1	Refuse removed without the summons being applied for.
Defective sink waste-pipes, woodwork, etc.	2	In 1 instance, summons issued and afterwards withdrawn on new waste-pipe being provided, costs paid by defendant. In the other case the woodwork was renewed and the wastepipe repaired without the summons being applied for.
Rooms in dirty condition	2	In 1 instance a summons was issued against the owner-occupier, and afterwards withdrawn on his decease, the occupation of the room being discontinued. In the other case, the necessary cleansing was carried out without the summons being applied for.
<i>Public Health Act, 1875, Sec. 36, and Newcastle-upon-Tyne Improvement Act, 1892, Sec. 53 :—</i>		
Houses without sufficient water closets. (Defective W.Cs. to be repaired, furnished with adequate water supply, etc).	3	In 1 instance summons issued against the owner-occupier. W.C. disused at his decease, and summons withdrawn; costs paid out of estate. In the remaining 2 cases, the work required was carried out without the summonses being applied for.
Foul pail closets (to be replaced by water closets).	13	Water-closets substituted without the summonses being applied for.
<i>Newcastle-upon-Tyne Corporation Act, 1911, Sec. 55 :—</i>		
Want of proper dustbins for storage of house refuse	3	Dustbins provided without the summonses being applied for.
TOTAL	40	

HOUSING.

That the problem of finding houses is by no means less acute than in previous years is shown by the following return :—

CITY ENGINEER'S CENSUS OF UNOCCUPIED HOUSES.

Class of House.	Nov. 1912.	Aug. 1914.	Nov. 1917.	Nov. 1918.	Nov. 1919.	Nov. 1920.	Nov.
Self-contained	306	137	40	29	43	39	
Flats (each Flat counted as a separate dwelling).	903	75	...	...	1	4	
House and Shop combined	68	29	1	2	...	...
Tenemented Houses ...	28	3	...	...	...	...
Total	1,305	244	41	31	44	43	

Effect of Bad Housing.—Reference has already been made to the effect of bad housing and overcrowding upon the public health. It is of interest to summarise some of the points. Speaking generally, the Wards with the highest populations per acre have also the highest death rates. The converse does not always hold, as some Wards, such as Walker, may have small densely-packed areas scattered about among wide stretches of open space or farm land. The rates in these will be relatively high. But where the dwellings are evenly distributed and in good sanitary condition, and the population on area is low, the death rate is also low.

Thus the highest death rate from all causes are in St. John's Ward (17·9), and All Saints' Ward (17·3), and the lowest in Arthur's Hill and Dene Wards, (9·6) and (9·7) respectively, which occupy respectively also the opposite ends of the scale in regard to quality of housing, and density of population (See Table on page 47).

Similarly infantile mortality generally follows the same rule, and the Wards with the highest wastage of child life are

again the most crowded ones. Thus St. John's Ward had an infantile mortality rate of 123 deaths per 1,000 births, All Saints' 114, Stephenson 115, and Armstrong 115, as compared with rates of 0, 25, and 69 in Arthur's Hill, Jesmond, and Heaton Wards respectively.

Over a period of fourteen years, the deaths per 1,000 births in one room, two room, and three room houses have been respectively 149, 124 and 109, and last year were 150, 125 and 109.

In the case of tuberculosis one sees again the influence of congestion and bad houses in the fact that the highest mortality for the year was in St. Andrew's Ward, (2·58), Byker, (2·51), All Saints' (2·31), St. Lawrence (2·02), while the lowest incidence occurred in Dene (0·72).

Again, 28 per cent. of the population live in one and two room houses, yet over 39 per cent. of the deaths from consumption were among these.

OVERCROWDING.

Since the end of the year under consideration, a special report has been made on the subject of overcrowding to the Sanitary Committee, and forwarded by it to the Housing Committee. The report is as follows:—

At a meeting of the Sanitary Committee on the 27th of February, 1922, the Inspector of Nuisances reported as to the general existence of overcrowding throughout the City, and cited a number of very bad cases as examples.

Several Councillors spoke as to the intolerable conditions existing in certain areas of the City, notably in St. John's and Stephenson Wards, though these are by no means peculiar, and one even went so far as to suggest the re-opening of long-closed cellars condemned years ago as utterly unfit for human habitation, to provide a little extra shelter.

In arriving at an estimate of the actual number of houses required the only definite data available are those of the Census. In 1911 the Census population was 266,603, and in 1921 278,400. There is therefore an increased population of 11,800 over the 10 years.

According to the Registrar General the average number of occupants per house in 1911 was 4·6, as compared with 4·4 for the large towns of England and Wales, and in 1921 it was 4·7 for Newcastle.

Since 1911 something like 1,888 houses have been built (including the Munition Cottages at Scotswood, and the Corporation houses likely to be opened by the end of March, and 716 have been closed for various reasons, leaving a balance to the good of 1,172. Even at the high average figure of 4·7 persons per house, the increased population will require 2,500 new houses, as against 1,170 provided, so that on this basis alone there are 1,300 houses short. To these must be added accommodation for 1,100 families at present living in houses which ought to be closed at once as utterly insanitary and incapable of being made habitable, a total shortage of 2,400.

There is no question as to the need for many more houses of all grades, but the deficiency is felt most acutely by the poorer class of inhabitant.

At a census of empty houses taken within the last few days by the Health Department staff, it was found that there were 5 vacant tenement holdings, 8 flats, 56 self-contained houses, and 12 houses-and-shops combined, most of which were either only momentarily unoccupied, or were being held vacant for sale. Sub-letting is general, and the rents extorted from the

unwilling but helpless sub-tenants of individual rooms, which too often lack every convenience and comfort, frequently approximate to the rent paid for the whole house.

As evidence of the great demand there is for houses, there are no less than 5,500 applications at present in the hands of the City Treasurer. A large proportion of these are from people most unhappily situated, and often grossly overcrowded; in numerous cases two families are sharing one small tenement, and in some instances even a single room. These applicants are not by any means all suitable tenants for Corporation houses at Walker or Pendower, and many would be quite unable to pay the rents asked. For these there is no provision whatever, and they are not likely to be relieved for years to come by the upward movement, from the poorer class of houses, of those who can afford better, particularly as it is in this type of property that the large number of condemnations referred to above has mainly to be carried out.

Disease, poverty, and bad housing form a vicious circle, each unit in which is directly causative of the other two, and there can be no greater handicap to the physical and moral welfare of the community than the conditions that exist almost everywhere in our meaner streets.

The Tuberculosis Medical Officer reports that while all the worst situated of the consumptives are removed to institutions, at the beginning of the present year 275 of those living at home had not separate rooms, and of these 205 had not even a separate bed. What then is the prospect for patients returning to their homes after undergoing a long and expensive period of more or less successful treatment in a Sanatorium?

These are things that may be seen by anyone who cares to look. The need is urgent, and whatever it may be decided upon to do should be put in hand at once.

It is strongly urged that immediate consideration should be given to some scheme for the housing of the poorest of the industrial classes, not merely for the relief of existing overcrowding, but in anticipation of the unhousing of probably, at least, 4,000 persons in the near future through the condemnation and closure of insanitary dwellings at present in occupation. At the very lowest computation 1,000 dwellings for this class of tenant are wanted *now*.

As a large proportion of the people that come under this head require to live in the more central parts of the City, where land is costly, and the garden-city type of house is an economic impossibility, it is suggested that careful consideration should be given to some such scheme as that already carried out by the Trustees of the Sutton Bequest in Barrack Road. This comprises large three-floor blocks of small and relatively low-rented holdings, self-contained as to water and sanitary conveniences, with ample air space and access of sunlight and playground room for children; in such a scheme central heating could be adopted with advantage, and the whole should be under the strict supervision of a resident caretaker.

As will have been noticed previously (page 167,) closet conversion has again been resumed, though the number dealt with is still greatly below the pre-War figure, due, not to any lessening of the need for this work, but chiefly to the cost of labour, and to the high price of building materials.

The Housing, Town Planning, etc., Acts.

Under these Acts 748 visits have been made by the Inspectors during the year.

HOUSING.

MINISTRY OF HEALTH TABLE.

YEAR ENDED 31ST DECEMBER, 1921.

Number of new houses erected during the year	...	...	—
(a) Total	...	...	305
(b) As part of a municipal housing scheme	...	...	276
1.—UNFIT DWELLING-HOUSES.			
Inspection :—			
(1) Total number of dwelling-houses inspected for housing defects (under Public Health or Housing Acts)	...	...	3467
(2) Number of dwelling-houses which were inspected and recorded under the Housing (Inspection of District) Regulations, 1910	...	...	625
(3) Number of dwelling-houses found to be in a state so dangerous or injurious to health as to be unfit for human habitation			27*
(4) Number of dwelling-houses (exclusive of those referred to under the preceding sub-heading) found not to be in all respects reasonably fit for human habitation	...	...	1982
II.—Remedy of Defects without service of Formal Notices :—			
Number of defective dwelling-houses rendered fit in consequence of informal action by the Local Authority or their officers	...	...	66
III.—Action under Statutory Powers :—			
(a) <i>Proceedings under section 28 of the Housing, Town Planning, etc., Act, 1919 :—</i>			
(1) Number of dwelling-houses in respect of which notices were served requiring repairs	...	...	243
(2) Number of dwelling-houses which were rendered fit :—			
(a) By owners	...	...	236
(b) By Local authority in default of Owners	...	...	—
(3) Number of dwelling-houses in respect of which Closing Orders became operative in pursuance of declarations by owners of intention to close	...	...	—

*See Page 180 for action under Newcastle Improvement Act, 1882, Section 32.

HOUSING.

MINISTRY OF HEALTH TABLE—*Continued*.

YEAR ENDED 31ST DECEMBER, 1921.

<i>(b) Proceedings under Public Health Acts :—</i>				
(1)	Number of dwelling houses in respect of which notices were served requiring defects to be remedied	...	...	1673
(2)	Number of dwelling-houses in which defects were remedied—			
(a)	By owners	...	...	1673
(b)	By Local Authority in default of owners	...	...	—
<i>(c) Proceedings under sections 17 and 18 of the Housing, Town Planning, etc., Act, 1909 :—</i>				
(1)	Number of representations made with a view to the making of Closing Orders	...	...	—
(2)	Number of dwelling-houses in respect of which Closing Orders were made	...	...	—
(3)	Number of dwelling-houses in respect of which Closing Orders were determined, the dwelling-houses having been rendered fit	...	...	—
(4)	Number of dwelling-houses in respect of which Demolition Orders were made	...	...	—
(5)	Number of dwelling-houses demolished in pursuance of Demolition Orders	...	...	—
3.—UNHEALTHY AREAS.				
A comprehensive report on housing areas has been prepared, but is held over until circumstances render it possible to deal with insanitary areas.				

Houses dealt with under the Newcastle-upon-Tyne Improvement Act, 1882, Section 32.

130, 132, 134, City Road, some improvements carried out.

19, Liverpool Square, put into habitable repair.

52, Blandford Street, 2 holdings closed, 1 put into repair.

In the following cases, the Medical Officer of Health certified that the dwellings were unfit for habitation, but

owing to the shortage of accommodation and the number of tenants involved no closing orders were made :—

894, 896, 898, 900, Shields Road.

St. Ann's House, City Road.

In the Shields Road property some temporary improvements were effected.

Houses Demolished, etc.—11 houses comprising 2 tenements (of 7 holdings), 4 self-contained, 2 flats, and 3 common lodging houses, have ceased to be used as dwellings, having been converted to business premises, etc.

Houses built during the Year 1921.—The City Engineer reports that there were 29 self-contained houses built privately during the year under report. In addition, 276 dwellings were provided under housing schemes, including 41 by the conversion of the Naval Hostel at Walker.

Tenement Bye-laws.—The number of tenemented houses in the City is 3,498, containing 9,904 holdings, as follows :—

1 Room.	2 Rooms.	3 Rooms.	4 Rooms.	5 Rooms.	Total
3,308	5,415	1,067	111	3	9,904

Customs and Inland Revenue Act, 1890, Sec. 26 (2).—

1 application under this Act was received, and a certificate was granted.

New Buildings and Sanitary Alterations.—224 plans were examined by the Medical Officer of Health before their submission to the Town Improvement and Streets Committee and, where necessary, suggestions forwarded to the City Engineer for his consideration, as compared with 37 during the previous year.

COMMON LODGING HOUSES.

The number of registered common lodging houses in the City at the end of the year was 48, as against 50 at the close of 1920.

At the beginning of 1921, applications were received for the re-registration of 50 houses, in accordance with the requirements of the Newcastle-upon-Tyne Corporation Act, 1911, registration being renewed in each instance up to the end of the year. 3 of these, however, were voluntarily closed as common lodging houses during the year, for conversion to business premises, whilst 1 new house was added to the Register.

The houses continue to be systematically inspected, strict attention being given to the observance of the Bye-laws and general sanitary requirements, which has been found to be fairly satisfactory.

The accommodation provided by the common lodging houses throughout the City has been more than equal to the demand, although some of the older houses, especially in the neighbourhood of the Quayside, are structurally out of date and not in accordance with modern principles. The number of common lodging houses accommodating women (either singly or as "married couples") at the close of the year was 10, all but one of which are situate in the area referred to.

The following summary shows in detail the accommodation afforded by the common lodging houses in the City, at the end of the year:—

Description of Lodgers.	No. of			Accommodation.			
	Houses	Single Beds	Double Beds	Married Couples	Single Women	Single Men.	Total.
Married couples and single women ...	2	23	12	12	23	...	47
Single women and single men	1	43	...	...	15	28	43
Single men, single women and married couples..	4	159	29	29	69	90	217
Women only	3	64	...	...	64	...	64
Men only	38	1,231	12	...	...	1,255	1,255
Totals	48	1,520	53	41 (82 persons)	171	1,373	1,626

The total number of lodgers for which the houses were registered was thus 1,626, as against 1,666 at the close of 1920 (a decrease of 40 in the "total accommodation"), due to the removal of the houses already referred to, and to a rearrangement of beds in some of the others. The average number of lodgers per night was 1,381, the highest and lowest numbers on any one night being 1,459 and 1,229, respectively.

REGISTERED COMMON LODGING HOUSES.

SUMMARY OF WORK DONE AND VISITS MADE DURING THE YEAR 1921.

Number of Houses on the register at the end of the year	...	48
Applications for re-registration (Newcastle Corporation Act, 1911, Sec. 63) ; all granted	... ..	50
Houses voluntarily closed	... ..	3
House newly registered	... ..	1
Inspections made in the day-time	... ..	6,667
,, ,, night-time	... ..	542
Notices served { re washing of bed clothes 196 { ,, limewashing of houses 98 }	... ..	294
Contravention of Bye-laws, &c. :—		
Cleaning and ventilation of houses	... ..	12
Dirty yards and conveniences	... ..	5
Beds not properly "aired" during prescribed hours	... ..	10
Slop water not emptied as required	... ..	1
Bedding defective	... ..	8
House not under proper control	... ..	1
Structural defects in houses	... ..	10
Defective water-closets and drains	... ..	6
Defective roofs and spouting	... ..	9
Insufficient ventilation to rooms (broken window cords, &c.)	... ..	5
Sink wastepipe choked	... ..	1
Wash-up sink defective	... ..	1
Unclassified minor nuisances or defects	... ..	1
Number of prosecutions	... ..	None
Deaths reported (non-infectious disease)	... ..	1
Cases of infectious disease reported (tuberculosis 6, scarlet fever 1, erysipelas 2, measles 2)	... ..	11

FACTORIES AND WORKSHOPS.

FACTORY AND WORKSHOP ACTS.—There are on the Register 1,256 workshops, besides a large number of domestic workshops, workplaces, laundries, and bakehouses.

Particulars as to the number and nature of the various trades carried on, the number of inspections made, defects found, out-workers, etc., are given in the following Tables.

During the year, 82 lists of outworkers have been received, 31 employers having sent in lists twice, and 20 employers once.

Included in the lists so received, were 32 names and addresses of out-workers employed outside the City, (which were duly forwarded to the respective districts, as required by law), while 2 of the lists were received from firms in other districts employing as out-workers persons resident in Newcastle.

42 notices as to insanitary conditions in factories and workshops have been received from His Majesty's Inspectors of Factories. 18 of these related to factories, and 24 to workshops. The matters referred to were duly investigated and dealt with by service of notice, &c., the results being reported to the Inspectors of Factories as required by the Act.

ADMINISTRATION OF THE FACTORY AND WORKSHOP ACT, 1901,
IN CONNECTION WITH FACTORIES, WORKSHOPS, WORKPLACES AND HOMEWORK,
DURING THE YEAR 1921.

Home Office Tables.

1.—INSPECTION.

INCLUDING INSPECTIONS MADE BY SANITARY INSPECTORS OR
INSPECTORS OF NUISANCES.

PREMISES. (1)	NUMBER OF		
	Inspections. (2)	Written Notices. (3)	Prosecutions. (4)
Factories (Including Factory Laundries.)	230	448	—
Workshops (Including Workshop Laundries.)	6,959		
Workplaces (Other than Outworkers' premises included in Part 3 of this Report.)	694		
Total	7,883	448	—

2.—DEFECTS FOUND.

PARTICULARS.	NUMBER OF DEFECTS.			Number of Prosecu- tions.
	Found.	Remedied.	Referred to H.M. Inspector.	
(1)	(2)	(3)	(4)	(5)
<i>*Nuisances under the Public Health Acts:—</i>				
Want of cleanliness	236	236	—	—
Want of ventilation	5	5	—	—
Overcrowding	3	3	—	—
Want of drainage of floors	—	—	—	—
Other nuisances	122	122	—	—
†Sanitary {insufficient	48	48	—	—
accommodation {unsuitable or defective	100	98	—	—
{not separate for sexes	41	41	—	—
<i>Offences under the Factory and Work- shop Act:—</i>				
Illegal occupation of underground bakehouse (s. 101)	2	2	—	—
Breach of special sanitary require- ments for bakehouses (ss. 97 to 100) }	61	61	1	—
Other offences	—	—	—	—
(Excluding offences relating to out- work which are included in Part 3 of this Report.)				
Total	618	616	1	—

* Including those specified in sections 2, 3, 7 and 8, of the Factory and Workshop Act as remediable under the Public Health Acts.

† Sec. 22 of the Public Health Acts Amendment Act, 1890, is in force. The standard fixed by the Sanitary Accommodation Order (No. 89) of 4th February, 1903, is followed as a model.

FACTORY AND WORKSHOP ACTS.—Continued.

3.—HOME WORK.

NATURE OF WORK.	OUTWORKERS' LISTS, SECTION 107.										OUTWORK IN UNWHOLESOME PREMISES, SECTION 108.			OUTWORK IN INFECTED PREMISES, SECTIONS 109, 110.				
	Lists received from Employers.						Prosecutions.		Notices served on Occupiers as to keeping or sending Lists.		Instances.		Orders made (Section 110.)		Prosecutions (Sections 109, 110.)			
	Twice in the Year.		Once in the Year.				Failing to keep, or permit inspection of Lists.		Failing to send Lists.		Instances.		Instances.		Instances.			
	Outworkers. †		Outworkers.		Lists.		Con-tractors (6)		Work-men. (7)		Con-tractors (6)		Work-men. (7)		Con-tractors (6)		Work-men. (7)	
	Lists. † (2)	Con-tractors (3)	Work-men. (4)	Con-tractors (5)	Work-men. (6)	Lists. (7)	Con-tractors (8)	Work-men. (9)	Lists. (10)	Con-tractors (11)	Work-men. (12)	Con-tractors (13)	Work-men. (14)	Lists. (15)	Con-tractors (16)	Work-men. (17)	Lists. (18)	
(1)																		
Wearing Apparel Making, &c.	62	18	172	18	11	26	94	Nil.	Nil.	8	8	Nil.	2	Nil.		Nil.		
Cabinet and Furniture Making	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Paper Bag Making	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...
Total	62	18	172	20	11	28	94	...	...	8	8	...	2	...		...	...

NOTES.—† The figures in columns (2), (3), and (4) are the *total* number of lists (received from employers who sent them both in February and August as required by the Act) and of the entries of names of outworkers in those lists. They are, therefore, double of the number of such employers and (approximately) double of the number of individual outworkers whose names are given, since in the February and August lists of the same employer the same outworker's name is often repeated.

Columns (3), (4), (6), and (7)—Employers seldom state whether their Outworkers are "Contractors" or "Workmen," hence the numbers given above may not be properly divided.

§ In 56 of these cases the lists of outworkers were not received in the month of February or August as required by the Act, but in every case they were subsequently received on the employers being reminded of their default. In the remaining 38 cases (of failing to keep or permit inspections of lists of outworkers) notice was also given and complied with.

* In each case the Notice was served upon the *Outworker*, and was duly complied with.

† Necessary precautions and disinfection carried out, no formal order made.

4.—REGISTERED WORKSHOPS.

Workshops on the Register (s. 131) at the end of the year.	Number.
(1)	(2)
Workshops	1,256
Domestic Workshops	232
Workplaces	272
Laundries	27
Bakehouses	209 [†]
Total ...	1,996

[†] Also 28 "Factory" Bakehouses.

5.—OTHER MATTERS.

CLASS.	Number.
(1)	(2)
Matters notified to H.M. Inspector of Factories:—	
Failure to affix Abstract of the Factory and Workshop Act (sec. 133)	20
Action taken in matters referred by H.M. Inspector as remediable under the Public Health Acts, but not under the Factory and Workshop Act (s. 5).	
Notified by H.M. Inspectors ...	42
Reports (of action taken) sent to H.M. Inspectors ...	42
Other:—	
Underground Bakehouses (s. 101):—	
Certificates granted during the year	—
In use at the end of the year	8

6.—TRADES.

Particulars as to the number and nature of the various trades carried on in the workshops of the City.

TRADES.	Workshops.	Domestic Workshops.	Workplaces
Ærated Water Manufacturers, Beer bottling, etc.	7	...	9
Artificial Stone, Asphalt, Bitumen Solution, Enamel and Cement making	4	...	...
Athletic Outfitters... ..	4	...	...
Bacon Washing	10	...	...
Bags, Baskets, Trunks, Brushes (making and repairing)	14	3	...
Bakehouses	209	...	...
Bouquets and Wreath making	15	...	...
Bedsteads, Bedding and Mattress making	1	1	6
Boat and Bicycle making and repairing	29	6	...
Blacksmiths and Locksmiths	44	...	...
Carried forward ...	337	10	15

6.—TRADES.—*continued*

TRADES.	Work-shops.	Domestic Workshops.	Work-places.
<i>Brought forward</i> ...	337	10	15
Boots, Shoes, Slippers (making and repairing)	155	29	—
Carts, Carriages, Coaches, Barrows (making and repairing)... ..	12	—	7
Carpets, Canvas, Water Proof Cover making...	6	—	—
Chemical Works	2	—	—
Confectionery making	9	1	—
Coopers	6	—	—
Cork Cutters	2	—	—
Currants and other Fruit packing and cleaning	4	—	—
Cigarette making and Pipe making and repairing	3	—	—
Dressmaking, Milliners, and Mantle Makers ...	209	104	—
Drysalters	4	—	—
Engravers	5	—	—
Engineers, Electric Heating and Cooking, etc.	24	—	—
Firewood Cutting and Firelighter Makers ...	4	—	1
Fish Curers	3	—	—
Furniture, Automatic Seats, French Polishing and Upholstery	52	4	—
Grain, Ice, Meat, Onions, Oil, packing and storage	24	—	24
Harness making and repairing	12	—	—
Hide and Skin Dealers	—	—	4
Instruments—Mathematical, Musical, etc. (making and repairing)... ..	6	—	—
Jewellery, Watches, Clocks, (making and repairing)	52	7	—
Joiners, Handrailers, Ladder Makers, and Wood Carvers and Turners	68	6	—
Lamp Making and repairing	1	—	—
Laundries	27	—	—
Marble Masons and Monumental Sculptors ...	9	—	—
Marine Stores	15	—	28
Miscellaneous Warehouses and Workshops, (which include repairing umbrellas and guns, preparing cattle food and medicine, dressing leather, packing eggs, lard rendering and gut scraping)	26	3	36
Painters' Workshops, and making and bottling Paint and Varnish	21	—	—
Photographers	23	3	—
Pickle and Sauce making	7	—	—
Picture Framers and Gilders	11	—	—
Plasterers, Lath rendering	3	—	—
Plumbers, Gas Fitters and making and repairing Sanitary Pipes and Fittings... ..	64	3	1
Restaurant kitchens	—	—	111
Rubber Stamps and Tyres (making and repairing)	2	—	—
<i>Carried forward</i> ...	1,208	170	227

6.—TRADES—*Continued.*

TRADES.	Work-shops.	Domestic Workshops.	Work-places.
<i>Brought forward</i> ...	1,208	170	227
Scales, Weighing Machines and Sewing Machines (making and repairing) ...	8	...	...
Sign Boards, Sun and Venetian Blind (making and repairing)	4	...	...
Stained Glass making	5	...	...
Stables (Livery, etc.) ... ..	...	...	34
Tailors	198	41	...
Taxidermists, Fur pulling and cleaning ...	6	...	...
Tea Blending and Packing	5	...	...
Ticket Writers	7	1	...
Timber Yards ... ..	...	...	11
Tin, Iron Plate and Wire Workers	14	1	...
Tripe Dressers	6	...	...
Typewriting Machines (repairing)	4	...	...
Underclothing (making)	26	19	...
Totals	1,492	232	272

COUNCIL AND OTHER SCHOOLS.

Sanitary Inspection.—117 inspections of these schools have been made during the year. At 4, certain insanitary conditions were found. (For particulars see page 171.) The matters in question were duly reported to the school authorities, and, *except* in one instance, have since been remedied.

THE RAG FLOCK ACT, 1911.

In pursuance of this Act, 6 samples of rag flock have been obtained and submitted for analysis to the Public Analyst. All conformed to the standard of cleanliness prescribed by the Regulations, (containing less than 30 parts of chlorine per 100,000 of flock).

For particulars of work done under the *Food and Drugs Acts*, see pages 157-162.

In conclusion, I have pleasure in acknowledging the satisfactory manner in which the members of the staff have carried out their various duties during the year.

I am, Sir,

Your obedient Servant,

W. HUDSPETH,

Senior Sanitary Inspector,

Inspector of Common Lodging Houses, &c.

Health Department,

Town Hall.

31st August, 1922.